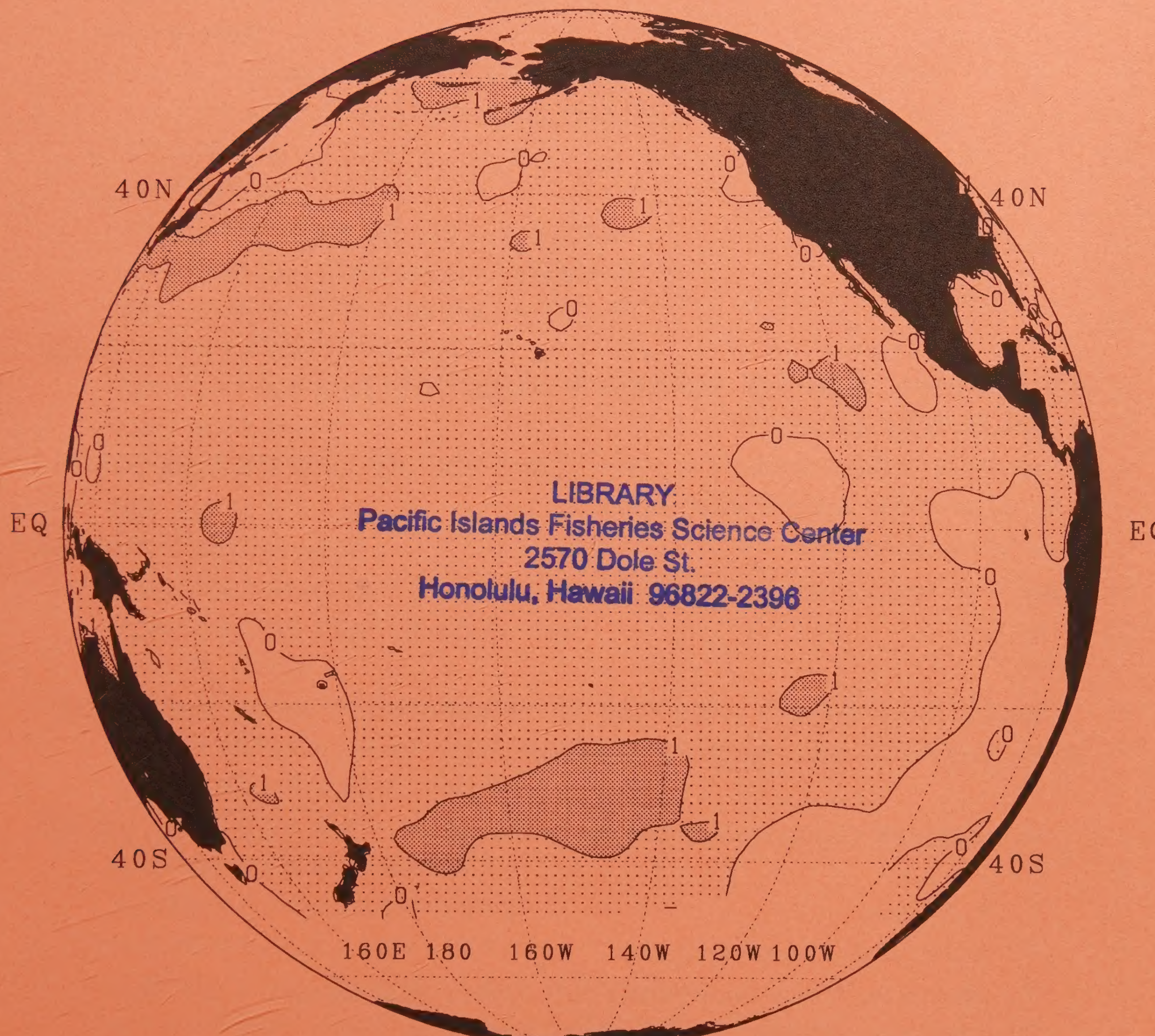
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気象庁海洋月報

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Climate and Marine Department

Japan Meteorological Agency

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平成15年9月

気象庁海洋月報は、気象庁 気候・海洋気象部 海洋気象情報室で作成しています。
本月報に関する問い合わせは、

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Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、2003年９月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for September 2003 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（２００３年９月）

日本近海の海況

海面水温は、30°Nから35°Nにかけて平年より1℃以上高かった。一方、千島列島周辺から三陸沖にかけてと日本海中部で平年より0.5℃以上低かった（第４図）。

黒潮は、四国から紀伊半島にかけて接岸した後、東海沖を東に流れ、上旬は三宅島の南を通過した後、房総半島沖を北東に流れていた。中・下旬は、東海沖の33.5°N、138°E付近で北東に向きを変え、三宅島付近を通過して、房総半島沖を北東に流れていた（第９図）。

太平洋の海況

太平洋赤道域の海面水温は、155°Eから170°Eにかけて平年より0.5℃以上高く、165°E付近では+1℃を超える正偏差が見られた。一方、105°W付近では平年より0.5℃以上低かった。

北太平洋の海面水温は、30°Nから40°Nの日付変更線以西、ベーリング海、及び15°N、120°W付近で平年より1℃以上高かった（第１７図）。

Highlights September 2003

Seas adjacent to Japan

SSTs were more than 1℃ above normal between 30°N and 35°N. SSTs were more than 0.5℃ below normal from the Kuril Islands to off Sanriku and in the central part of the Japan Sea (Fig. 4).

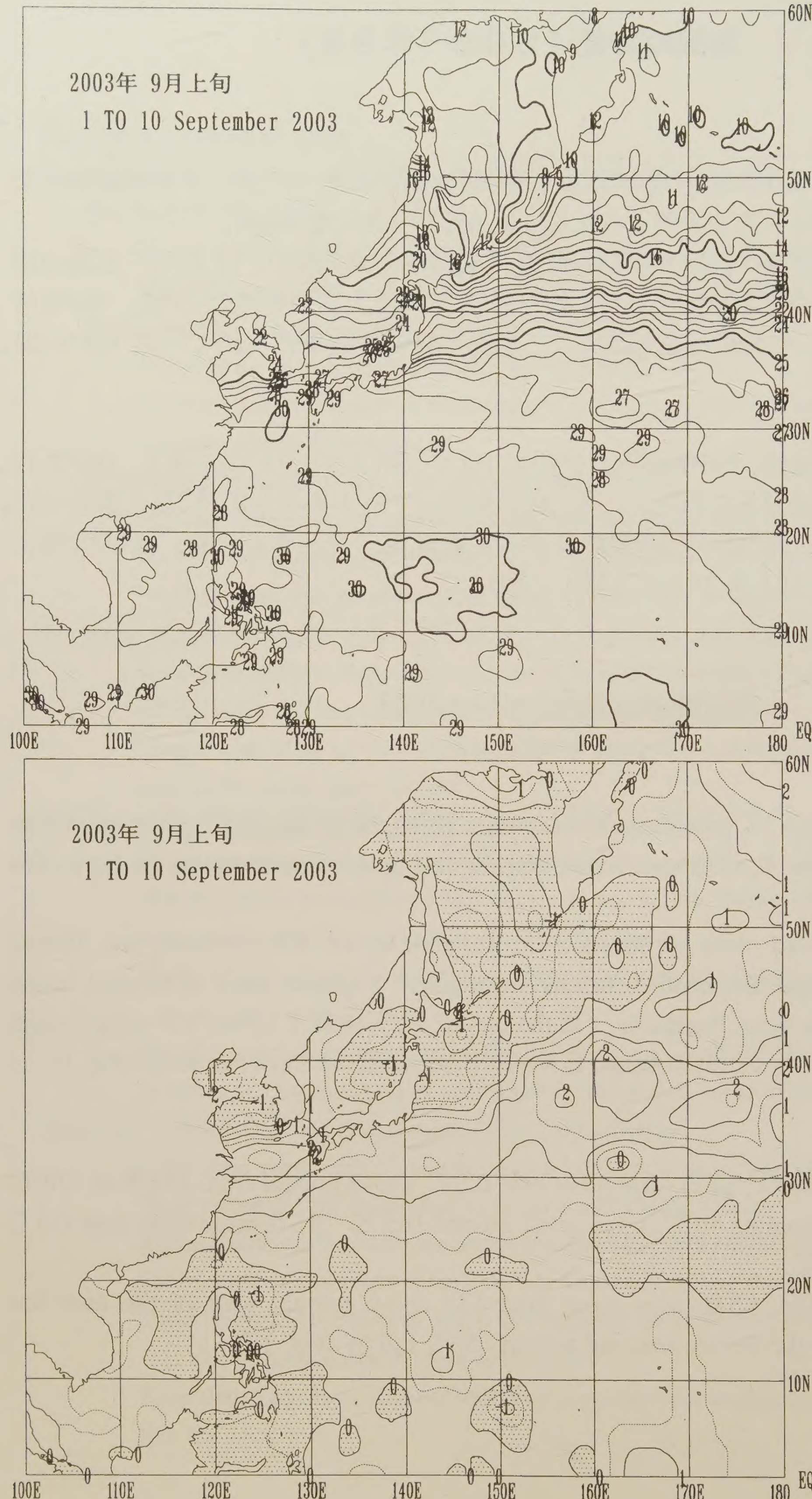
The Kuroshio flowed close to coasts from Shikoku to the Kii Peninsula and flowed eastward off Tokai throughout the month. In early September, it passed south of Miyake Island and flowed NE-ward off the Boso Peninsula. In the rest of the month, it turned NE-ward around 33.5°N, 138°E, passed near Miyake Island, and flowed NE-ward off the Boso Peninsula (Fig. 9).

Pacific Ocean

In the equatorial Pacific, SSTs were more than 0.5℃ above normal from 155°E to 170°E. Positive SST anomalies exceeding +1℃ were found around 165°E. SSTs were more than 0.5℃ below normal around 105°W.

In the North Pacific, SSTs were more than 1℃ above normal west of the date line between 30°N and 40°N, in the Bering Sea, and around 15°N, 120°W (Fig. 17).

Ten-day mean SST & Anomalies



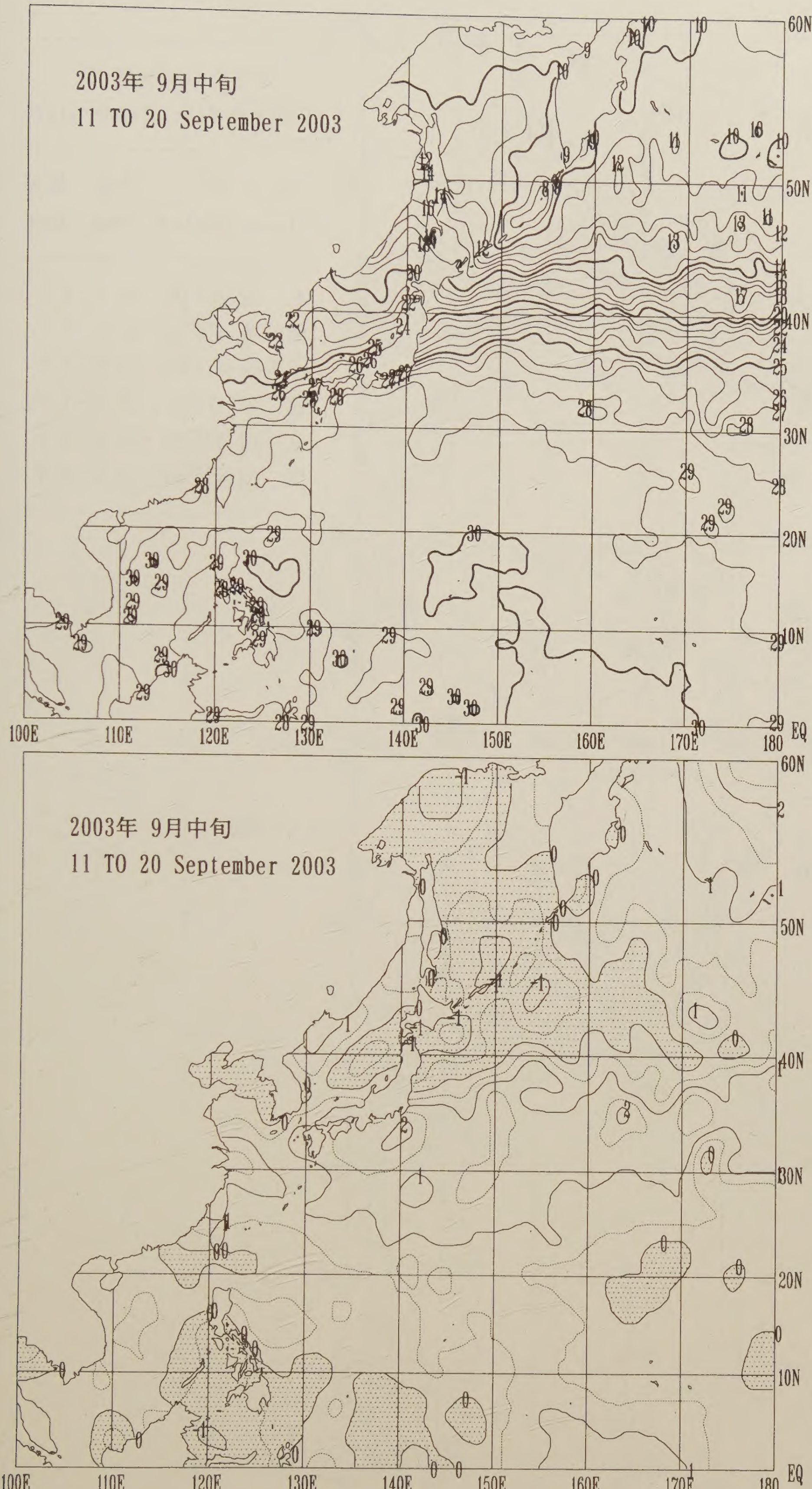
旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.2	0.4
御前崎(47655)	25.3	-0.3
小名浜(47598)	20.2	-2.0
宮　古(47585)	19.0	-1.3
江　差(47428)	22.2	-1.1
浜　田(47755)	27.6	1.0

第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2003年 9月上旬)

Fig. 1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in September 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies



旬平均沿岸水温(℃)

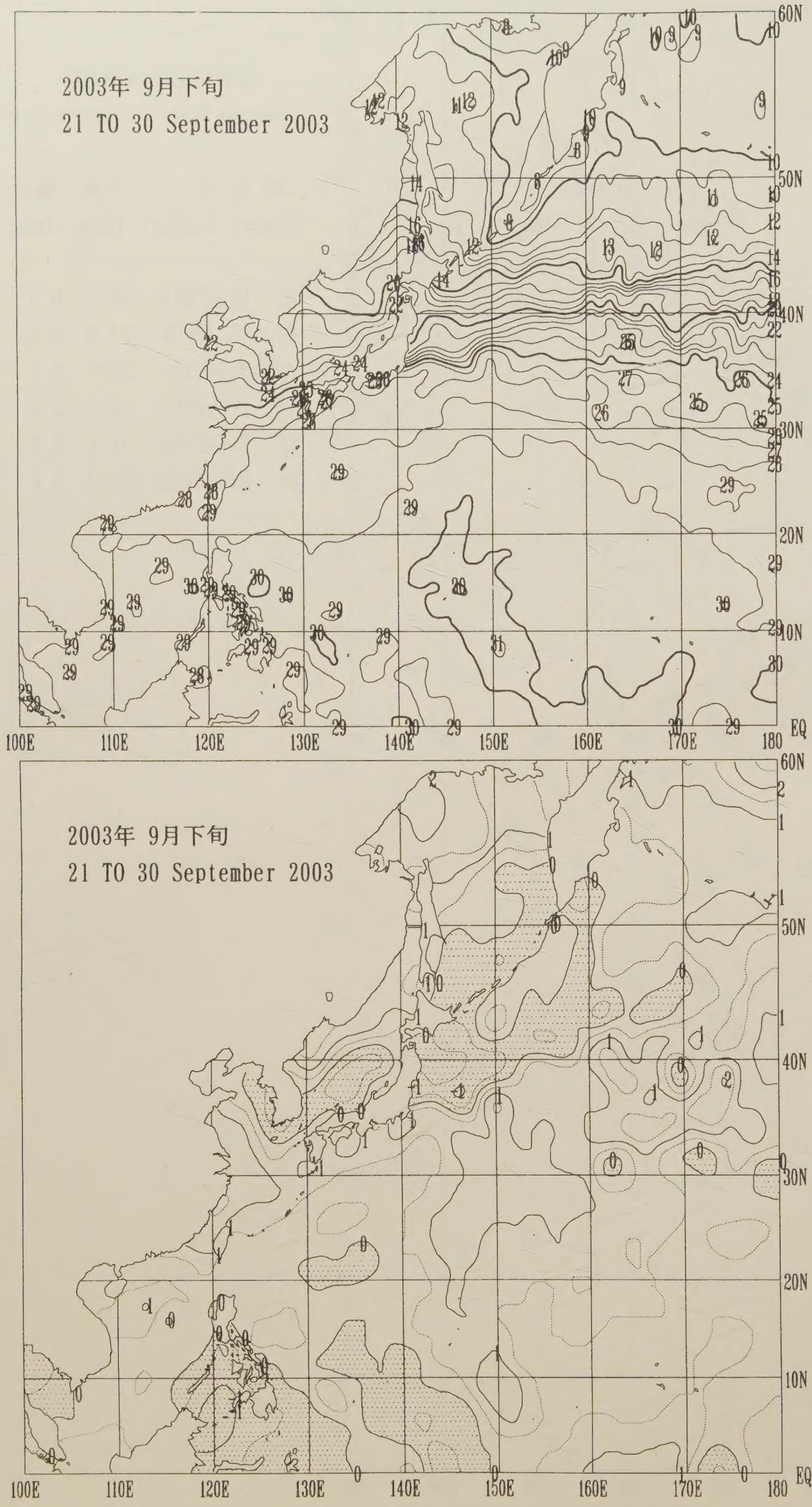
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	28.5	0.0
御前崎(47655)	24.9	0.2
小名浜(47598)	20.9	-1.1
宮　古(47585)	18.9	-1.3
江　差(47428)	21.9	-0.5
浜　田(47755)	26.9	1.6

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2003年 9月中旬)

Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in September 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies

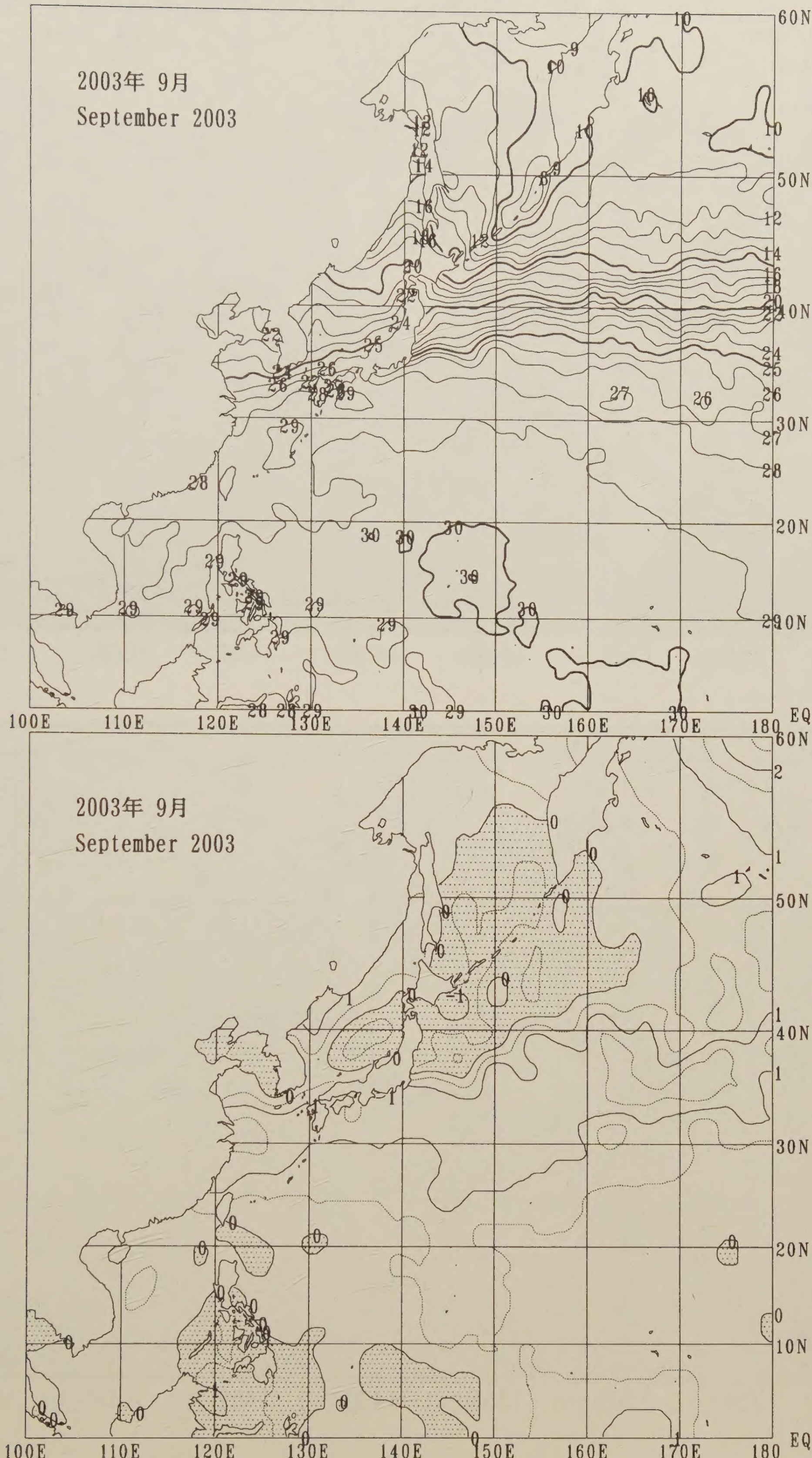


旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	28.3	0.5
御前崎(47655)	22.5	-1.1
小名浜(47598)	19.2	-2.2
宮　古(47585)	18.7	-1.0
江　差(47428)	20.0	-0.8
浜　田(47755)	23.5	-0.5

第3図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2003年 9月下旬)

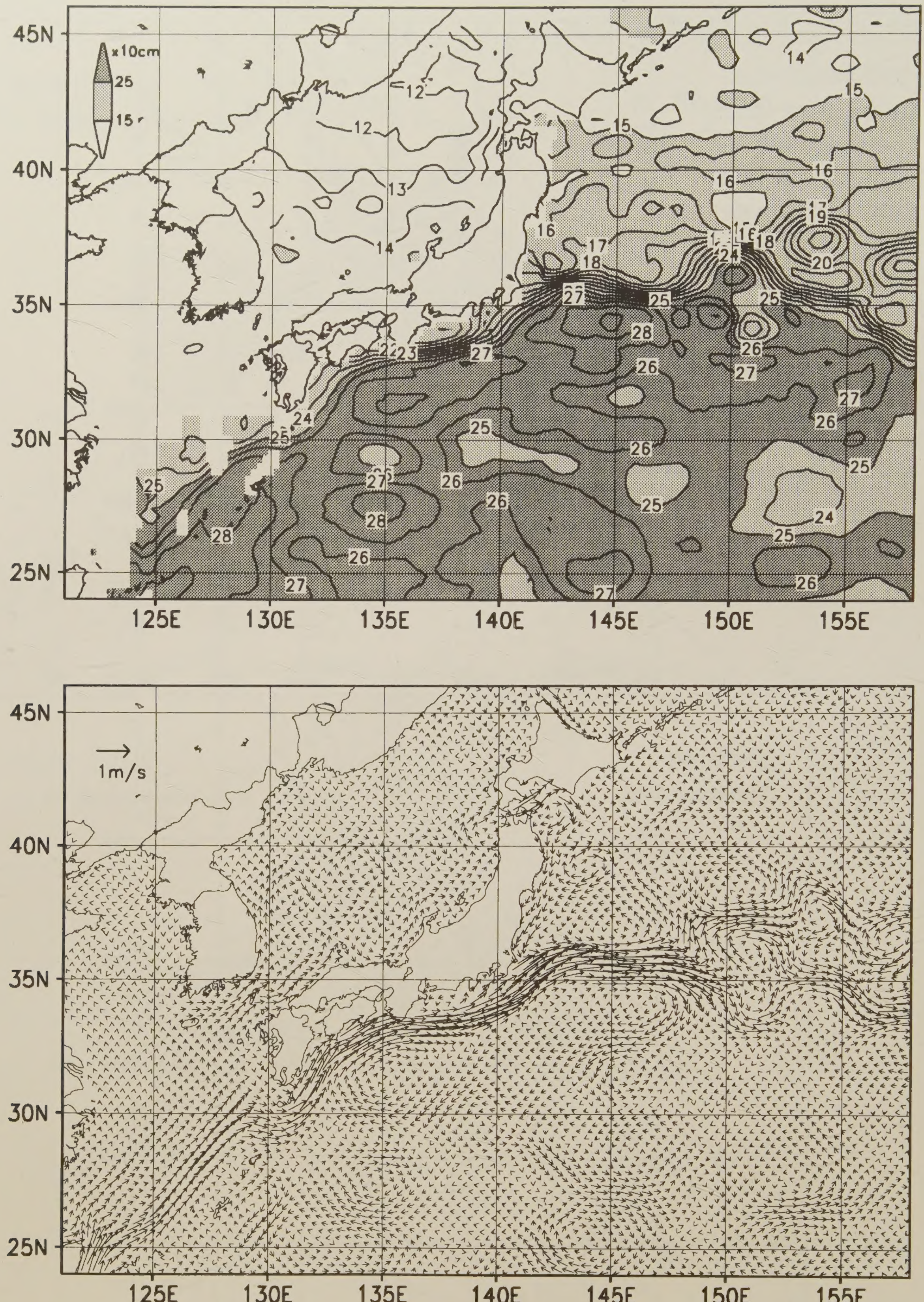
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第4図 北西太平洋月平均海面水温図(上)及び偏差図(下) (2003年 9月)

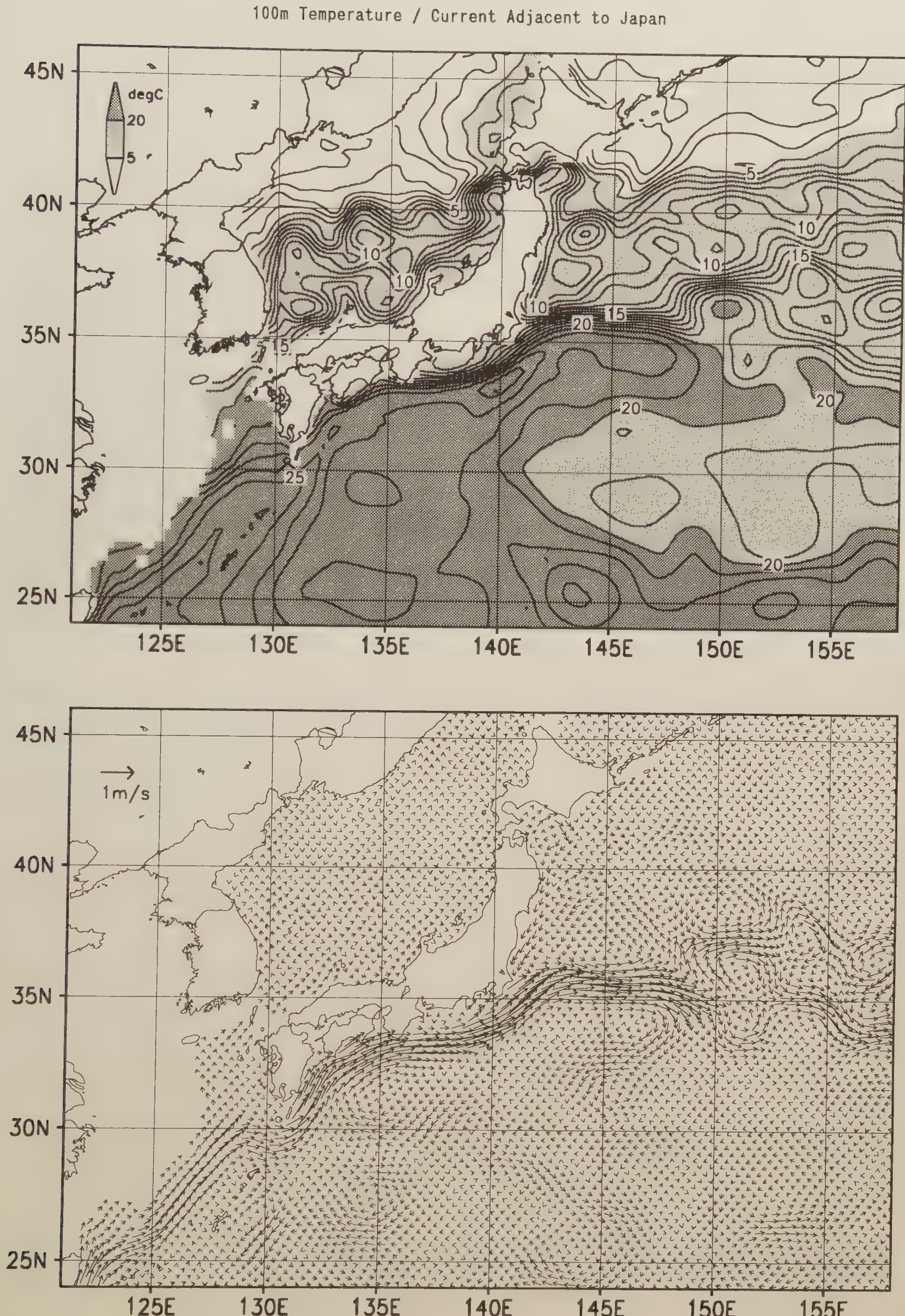
Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for September 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Dynamic Height / Sea Surface Current Adjacent to Japan



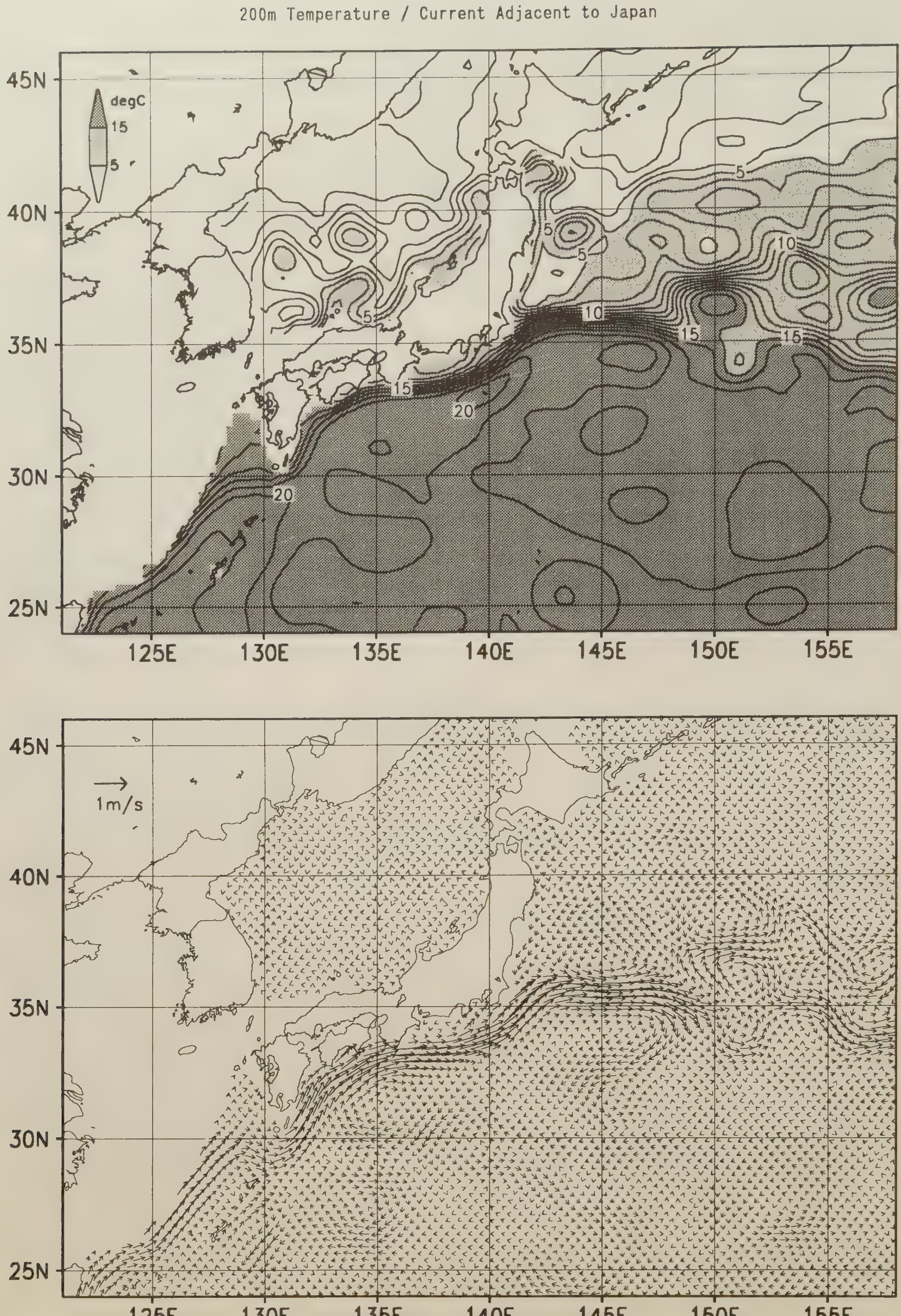
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（海洋総合解析システムによる）

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for September 2003. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



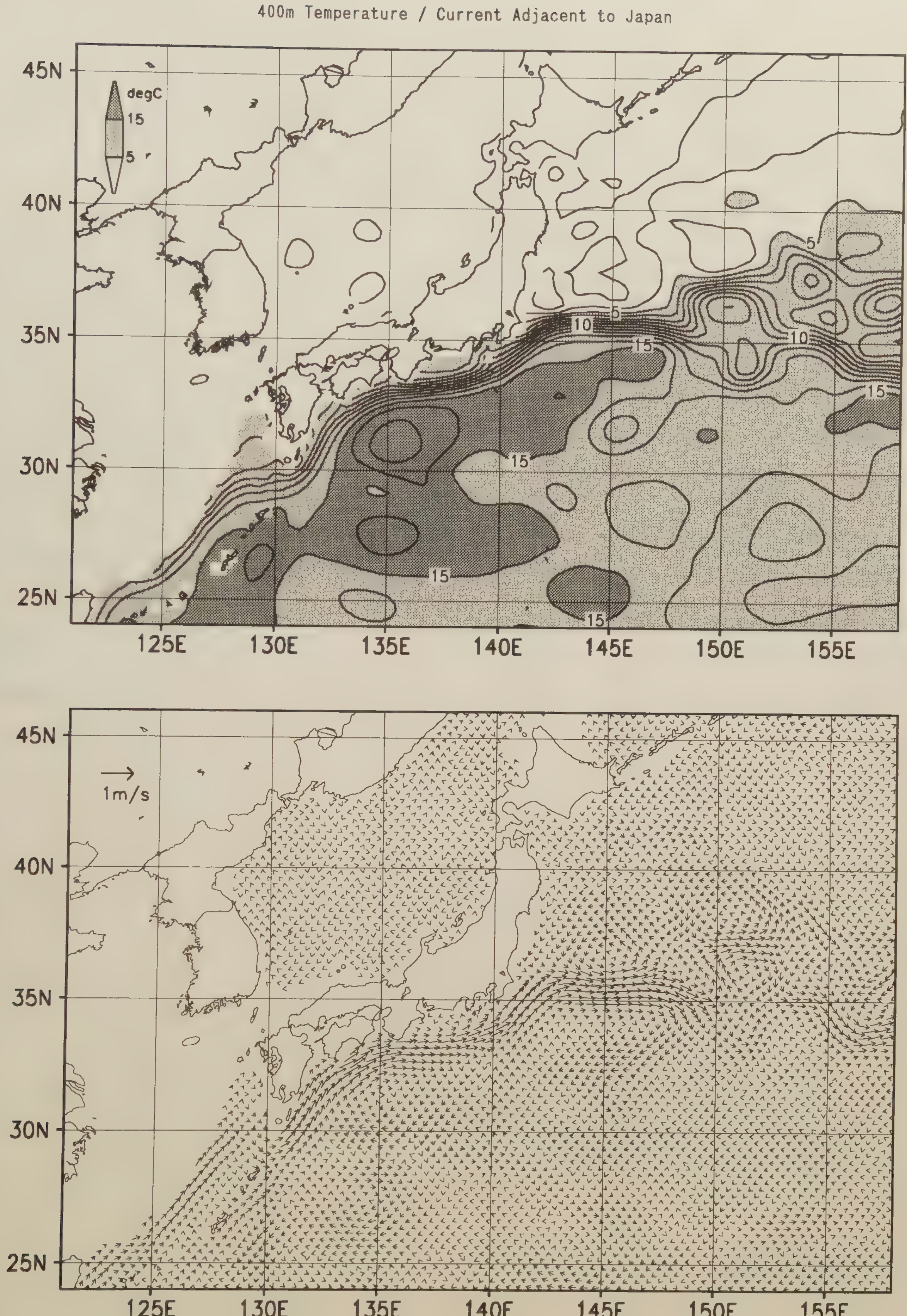
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（海洋総合解析システムによる）

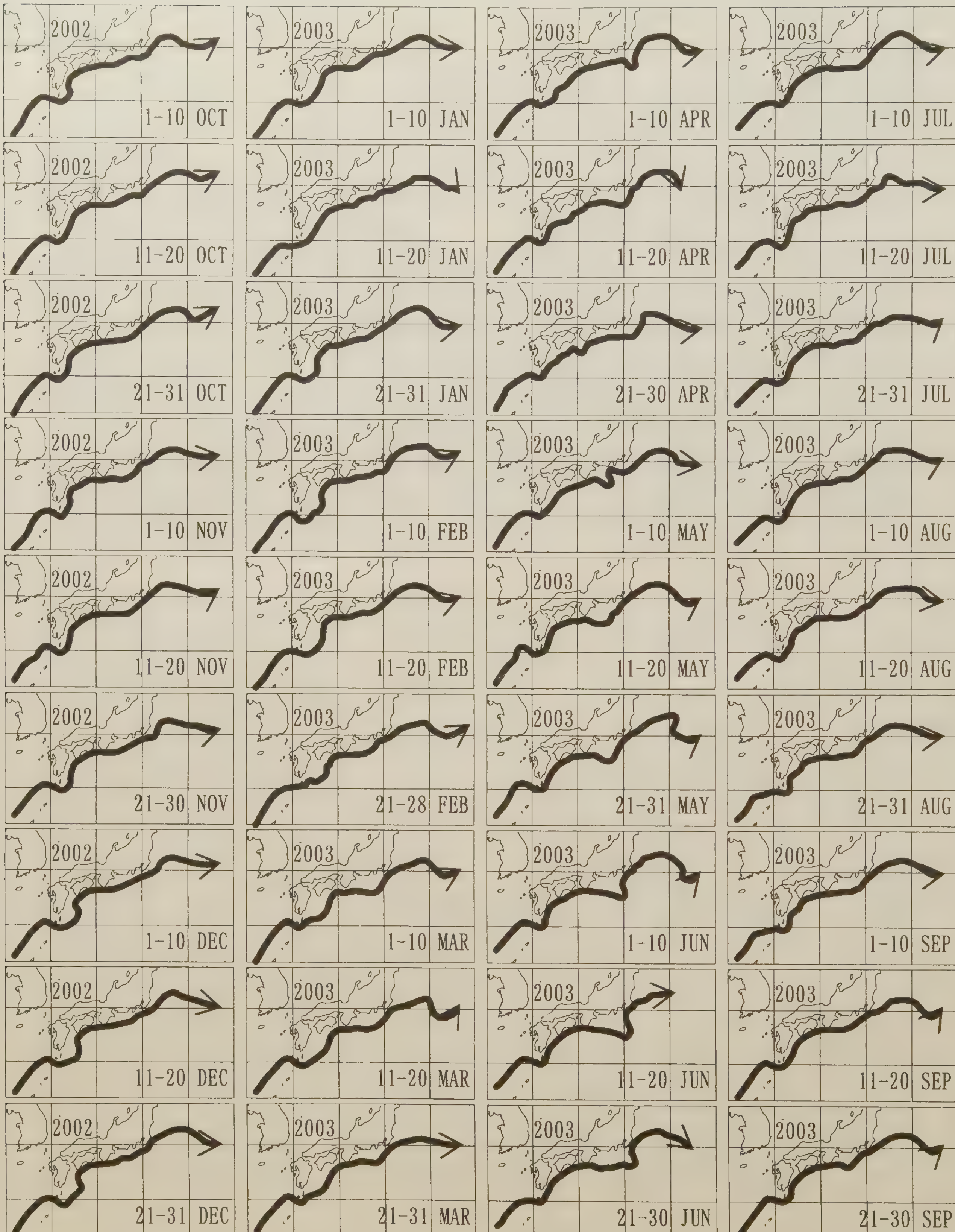
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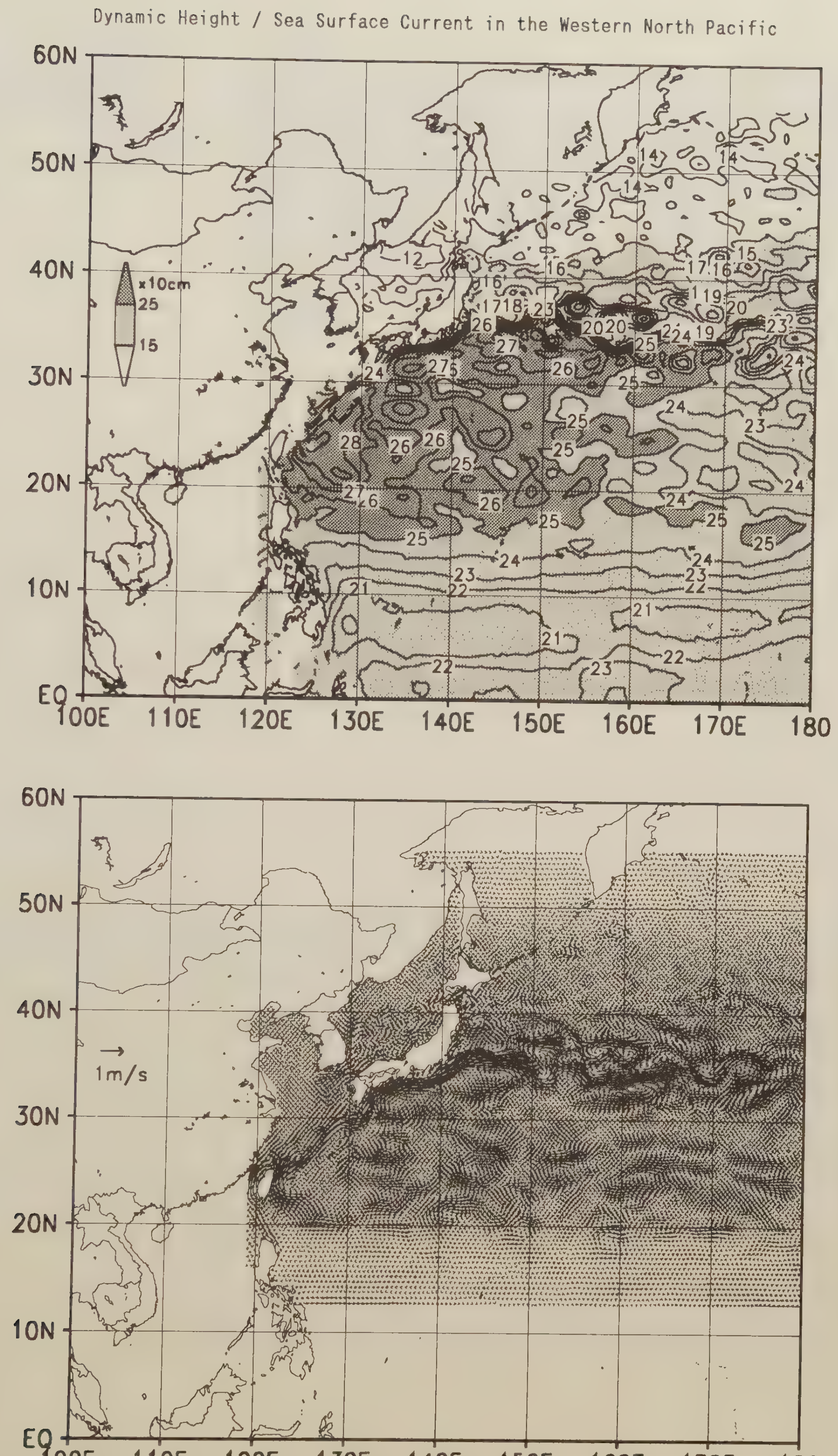
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Location of the Kuroshio axis



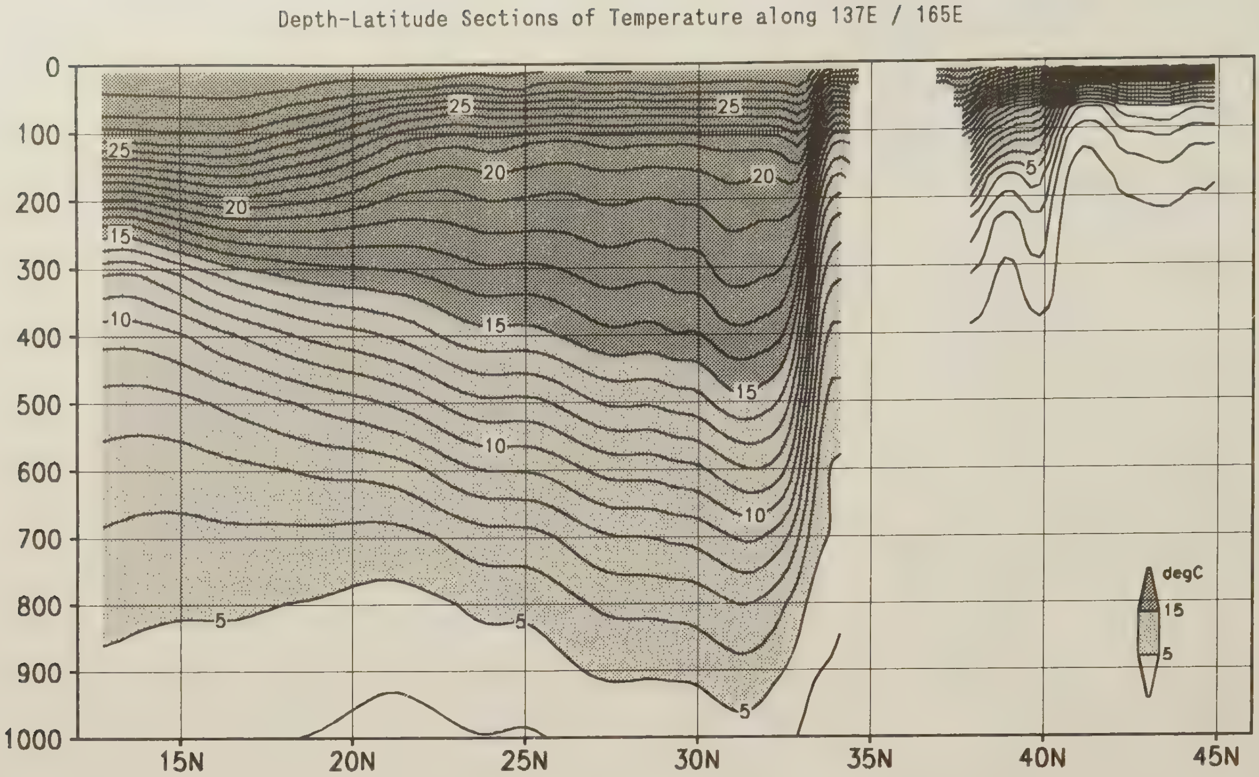
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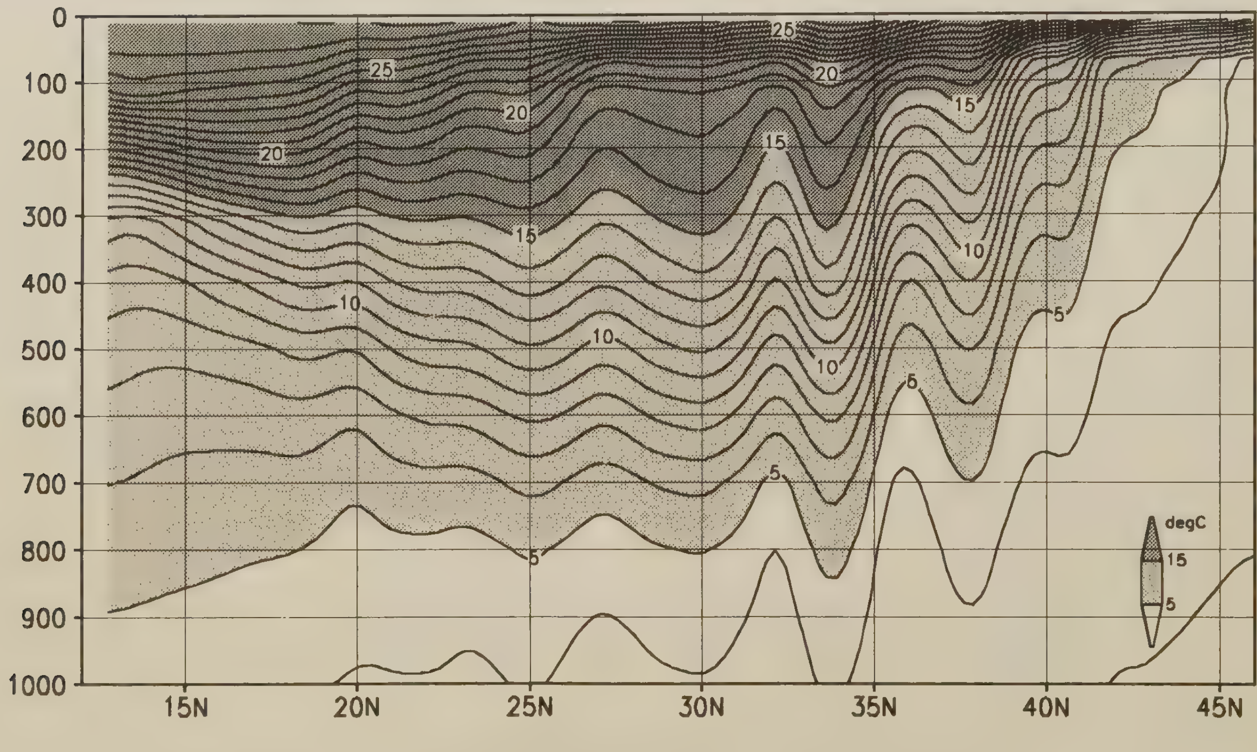
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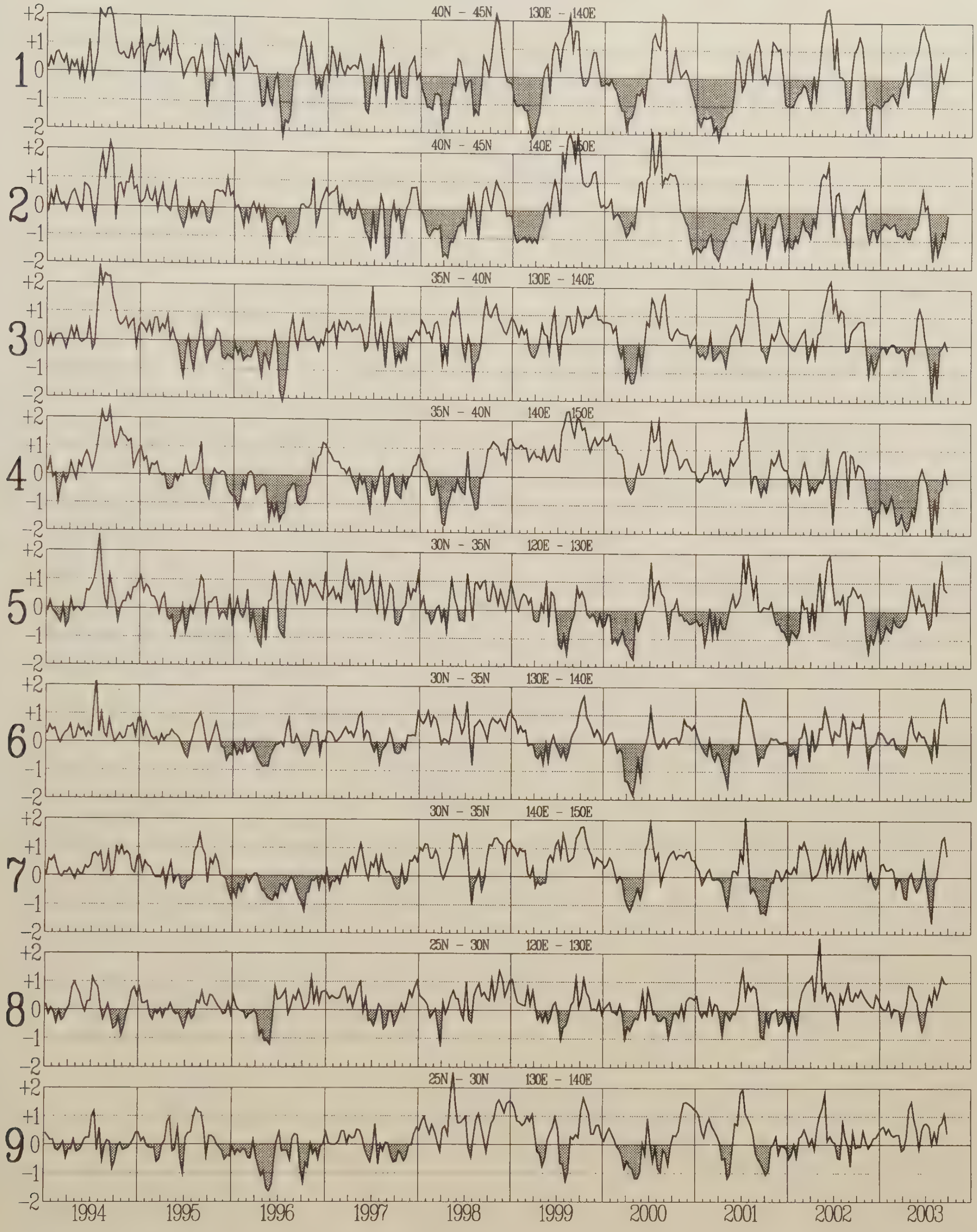
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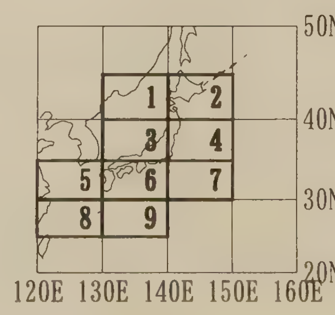


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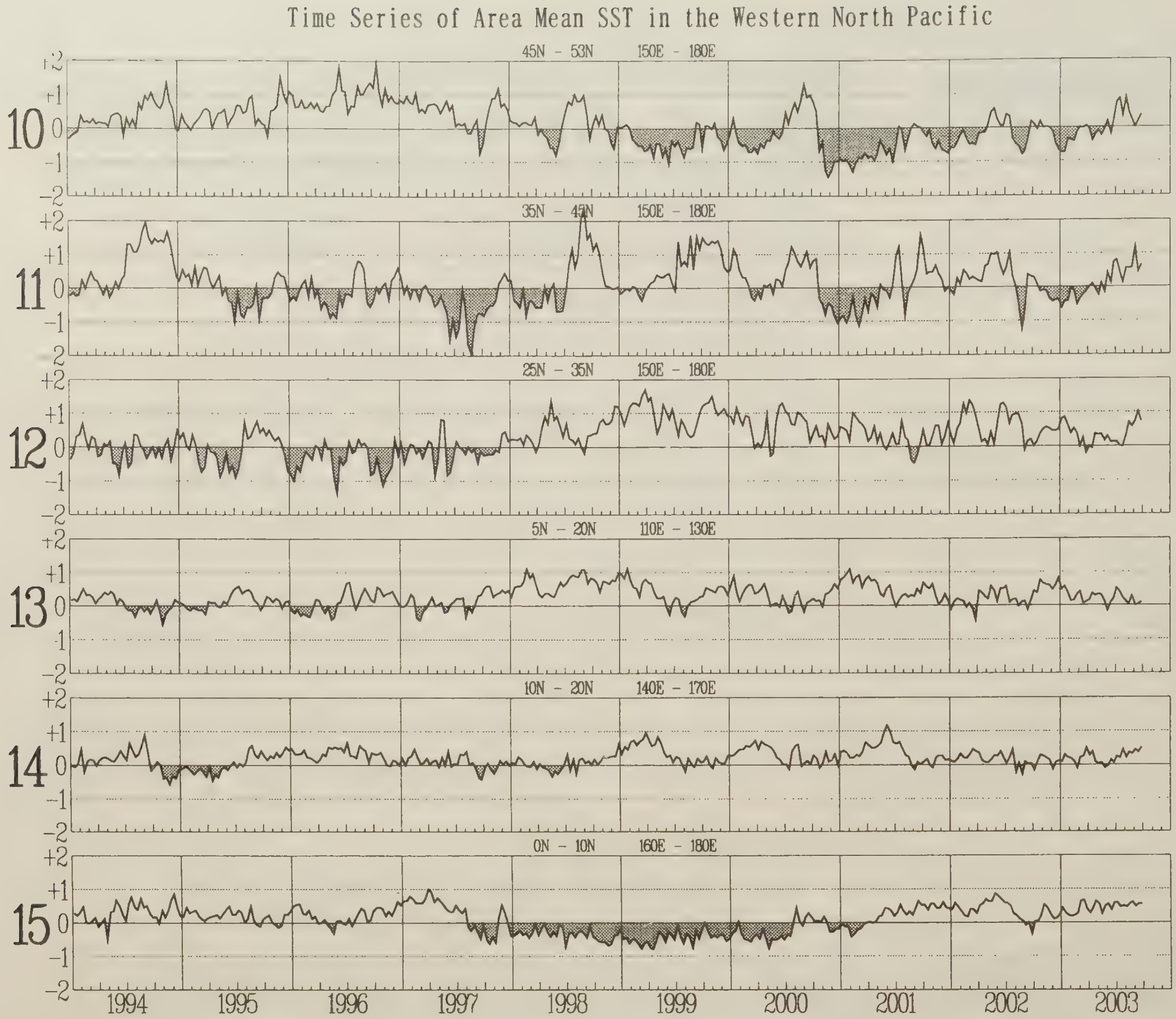
Time Series of Area Mean SST in the Western North Pacific





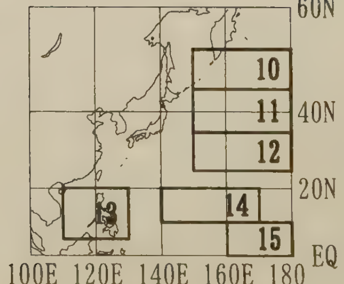
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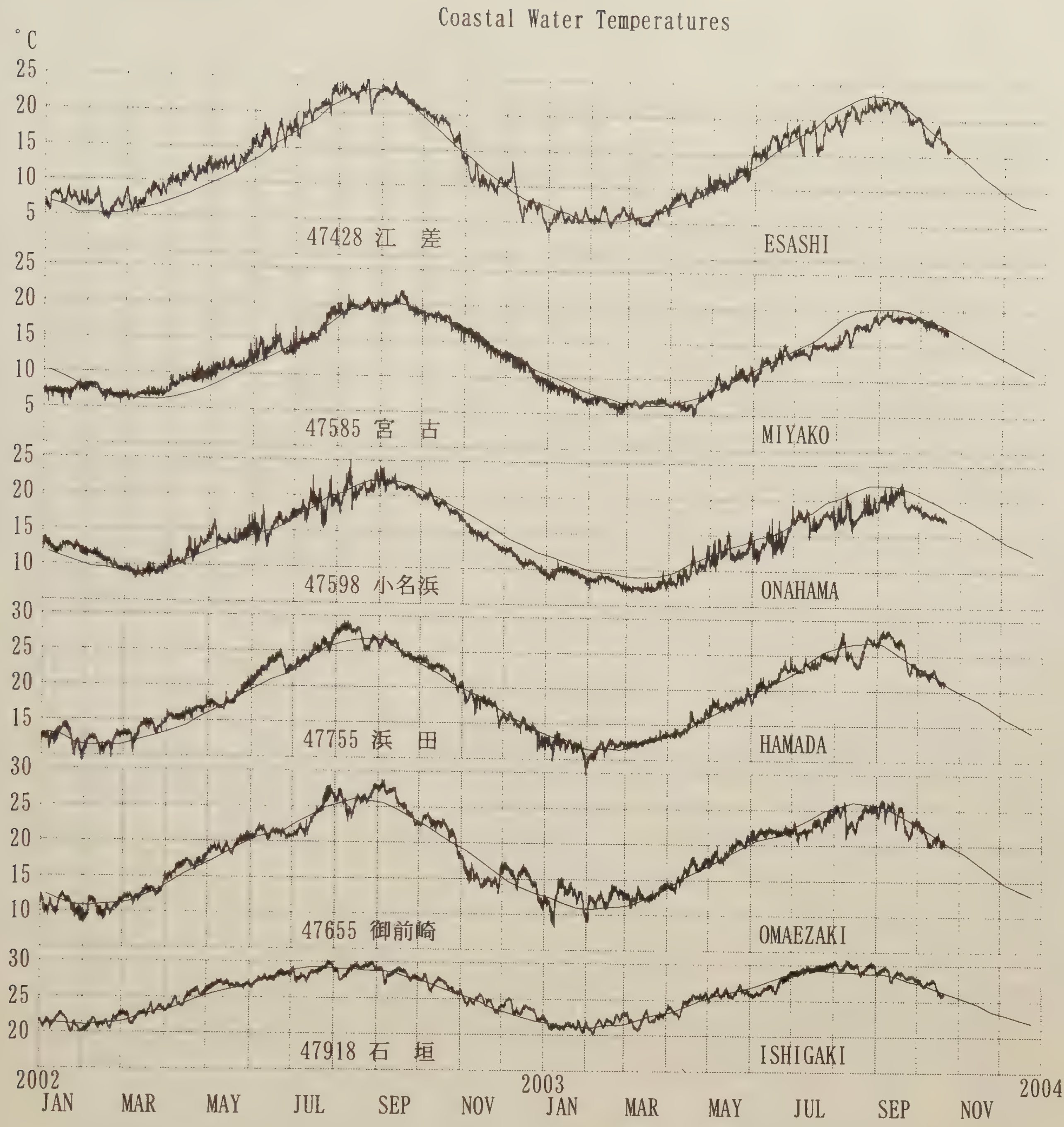
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第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

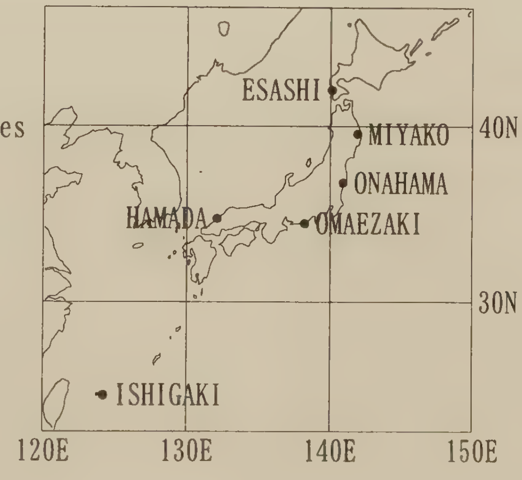
Fig. 13 (continue) Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).



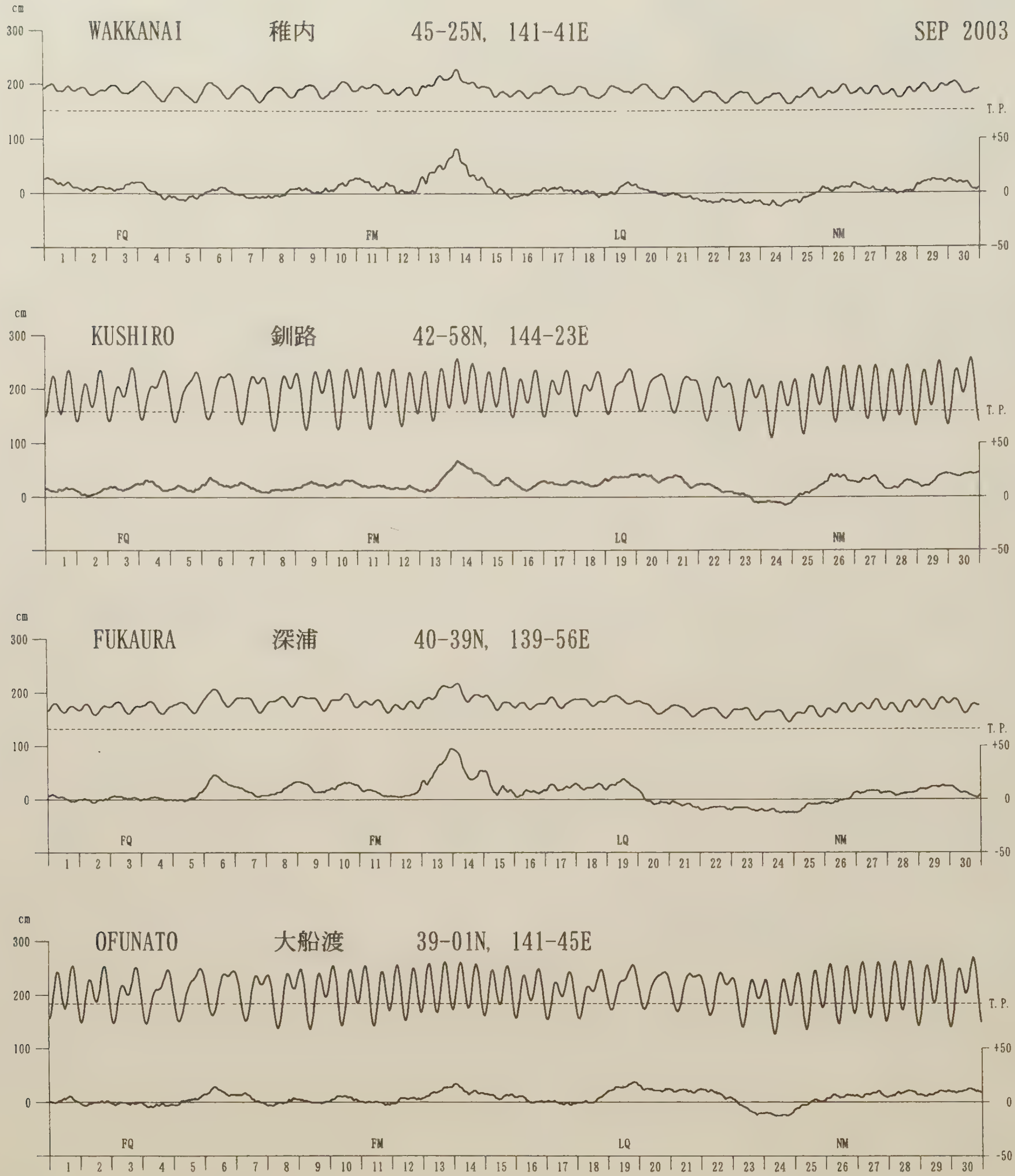


第14図 沿岸水温時系列図

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Thin lines show ten-day mean climatology.

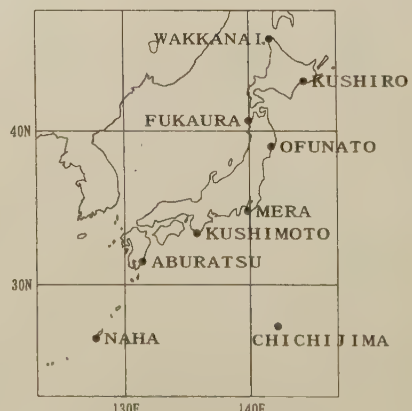


Time Series of Sea Level



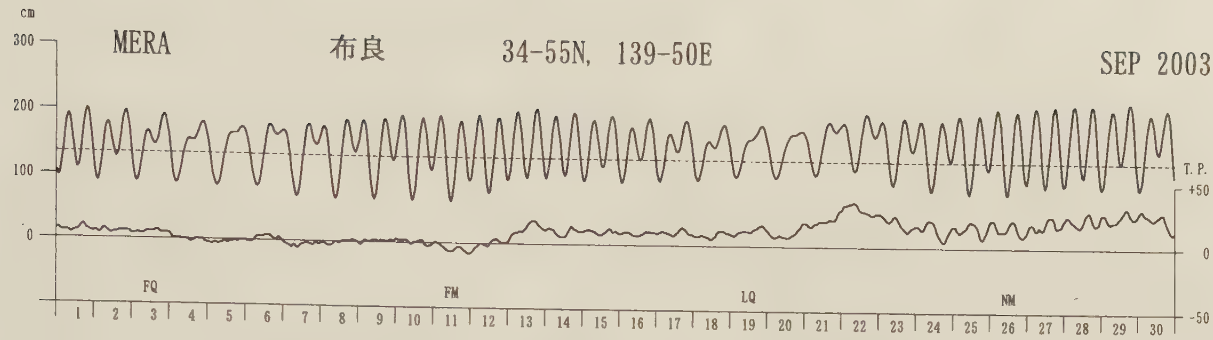
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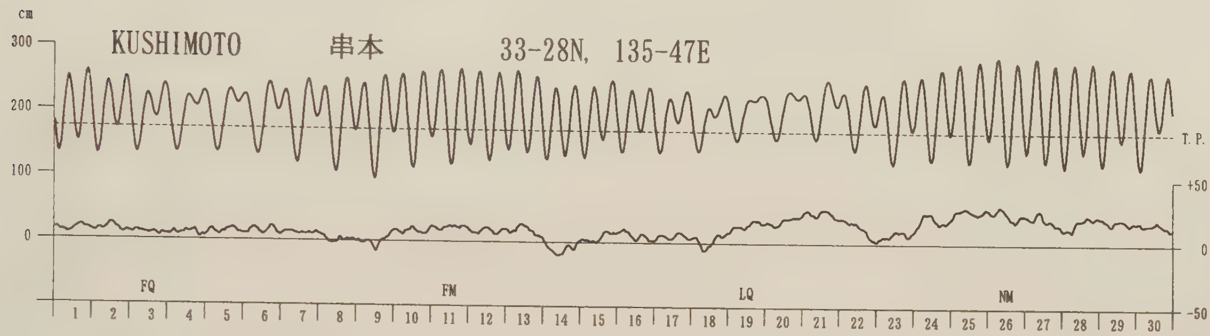
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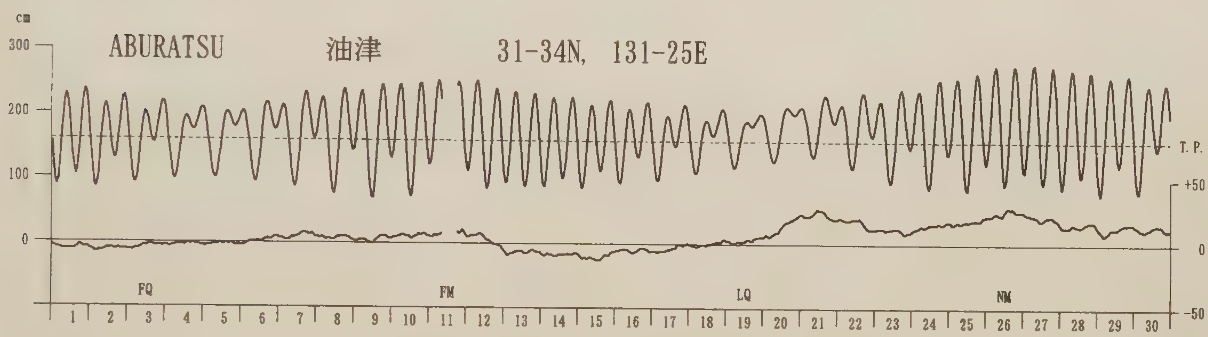


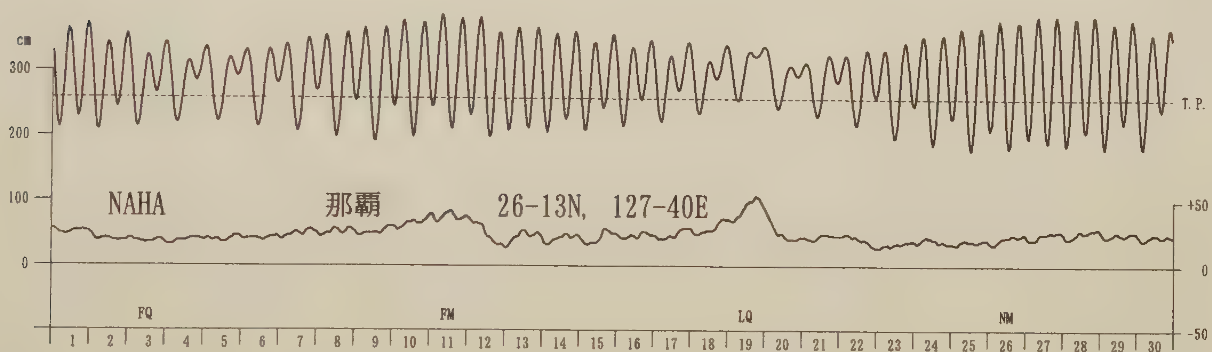
NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)

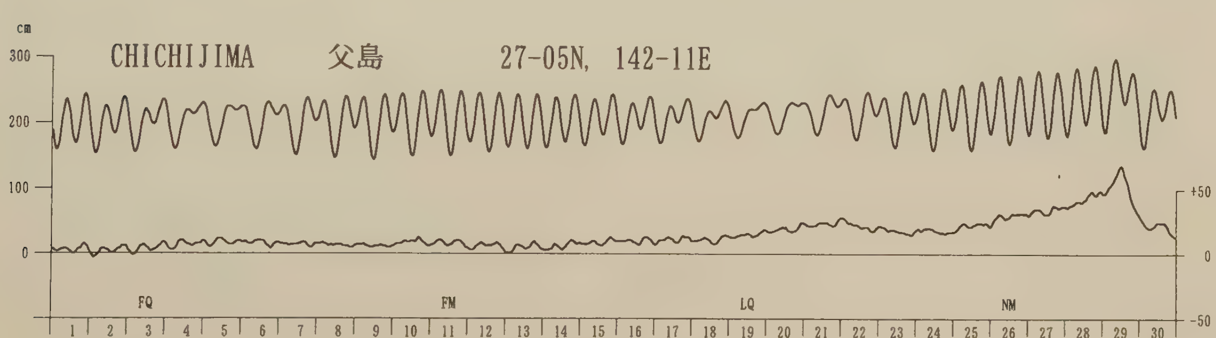
Time series of Sea Level





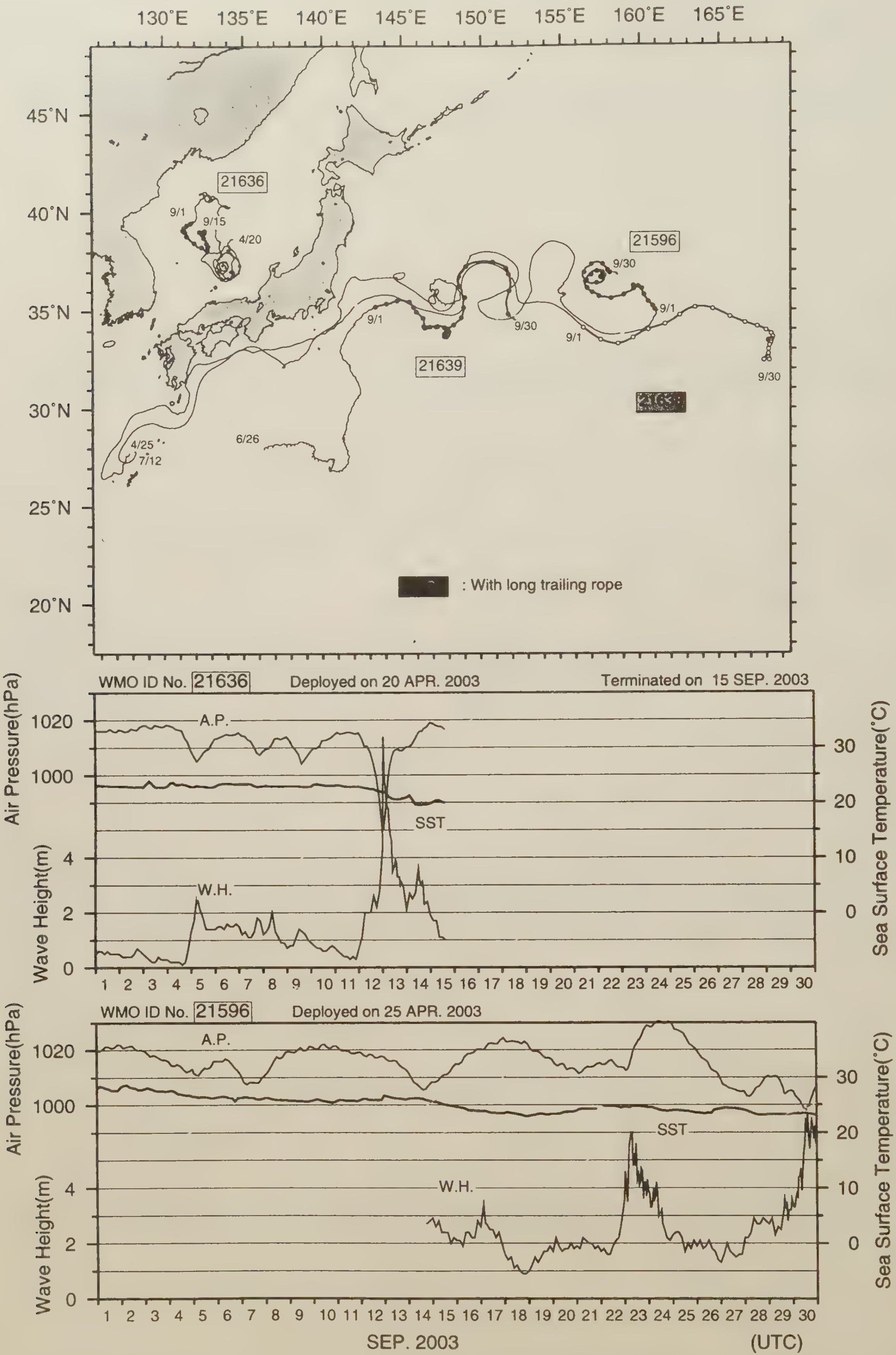






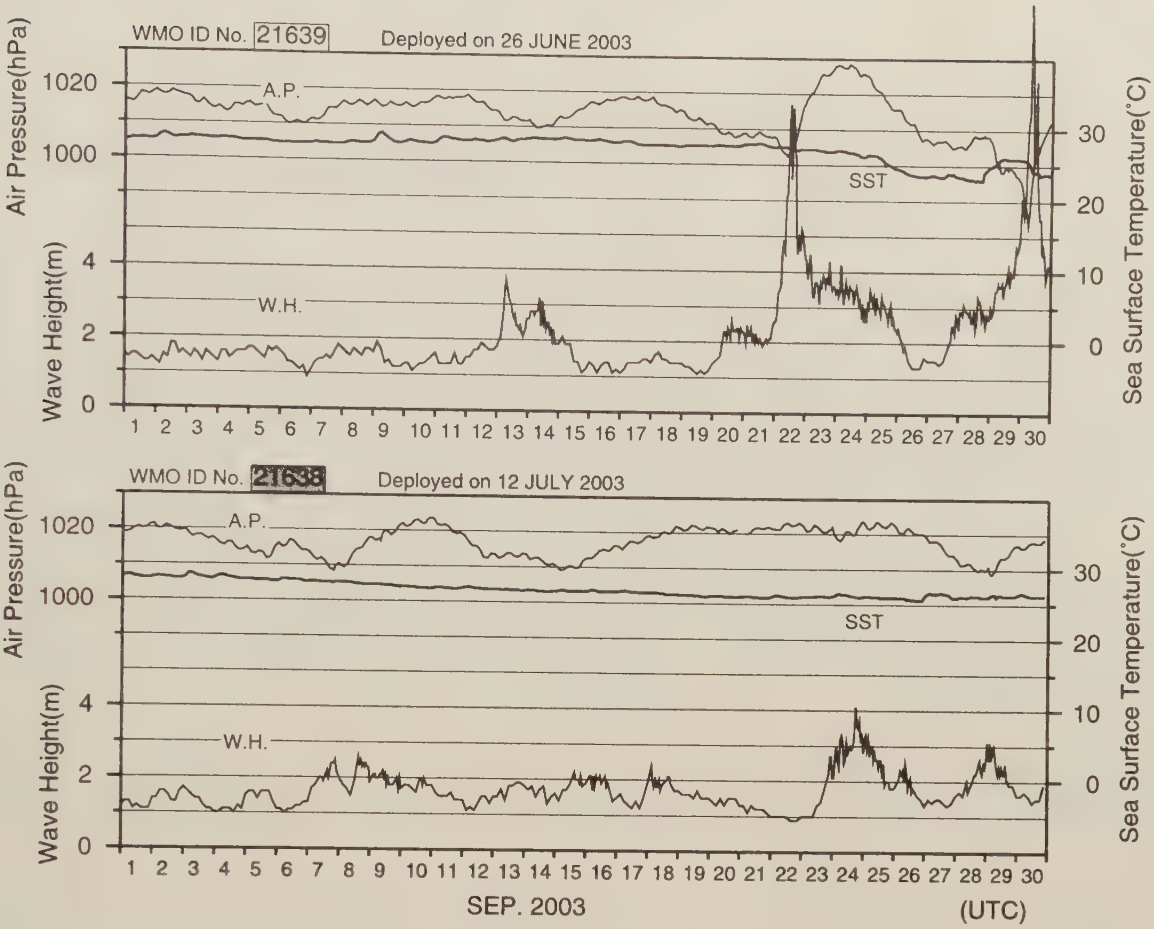
第15図 つづき

Fig. 15 continue



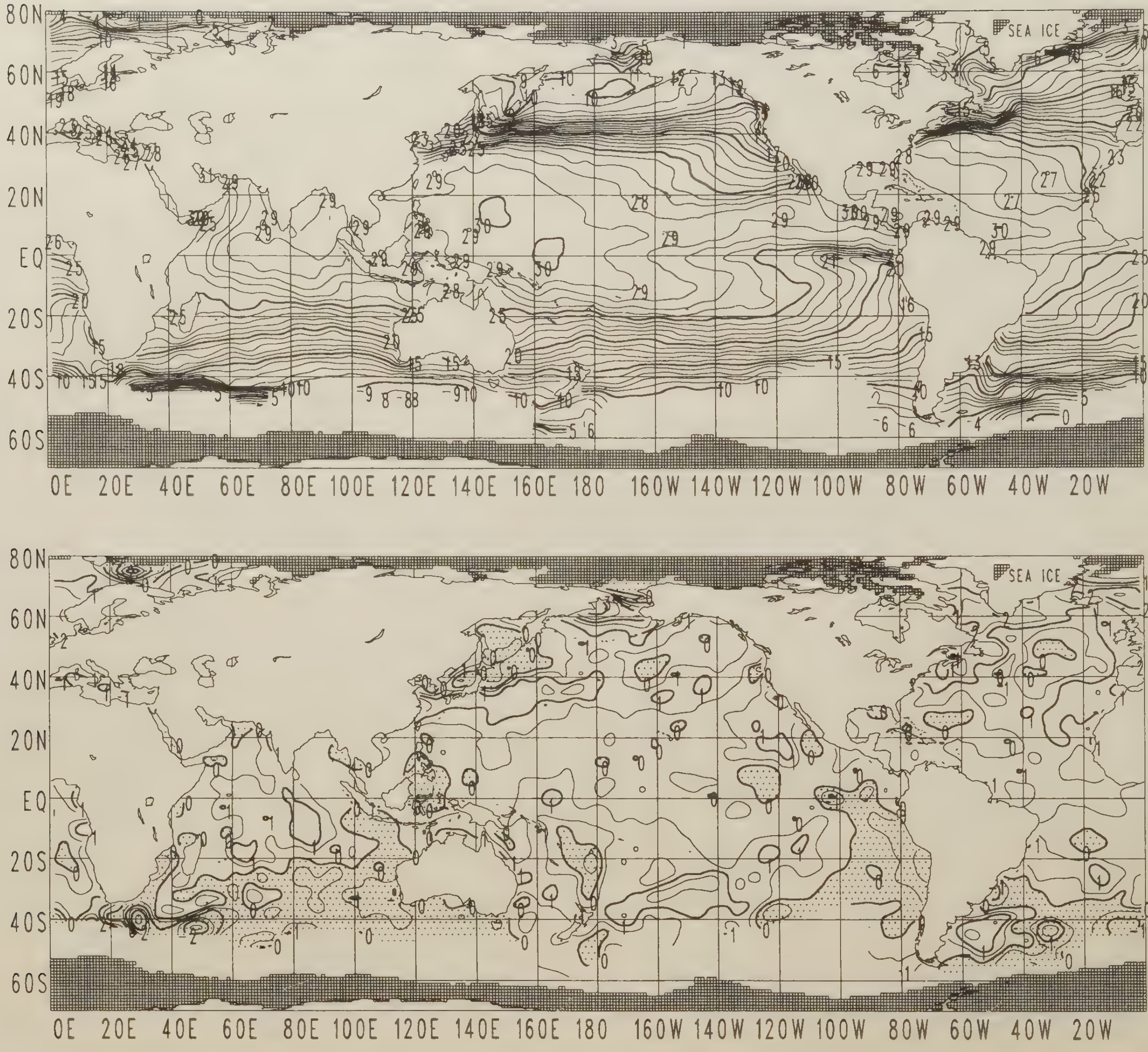
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The lower panel shows time series of observation data.



第16図 つづき
Fig.16 continue

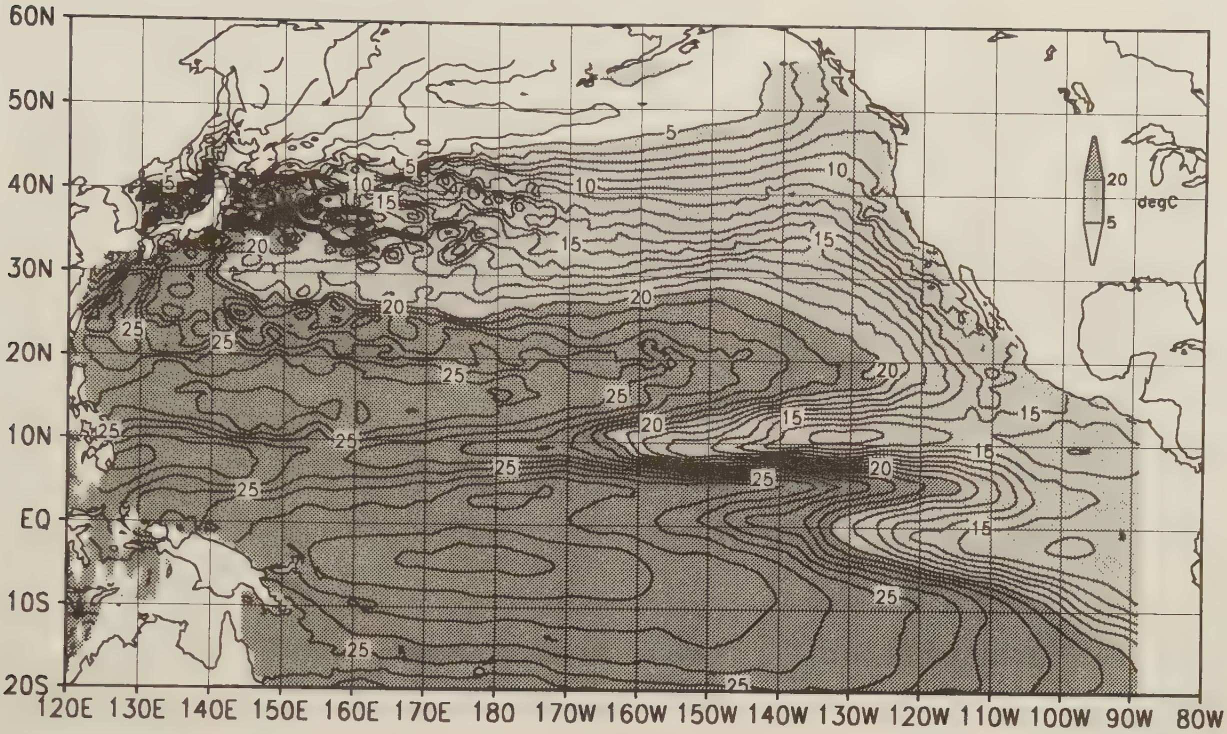
SST & Anomalies in the Global Ocean



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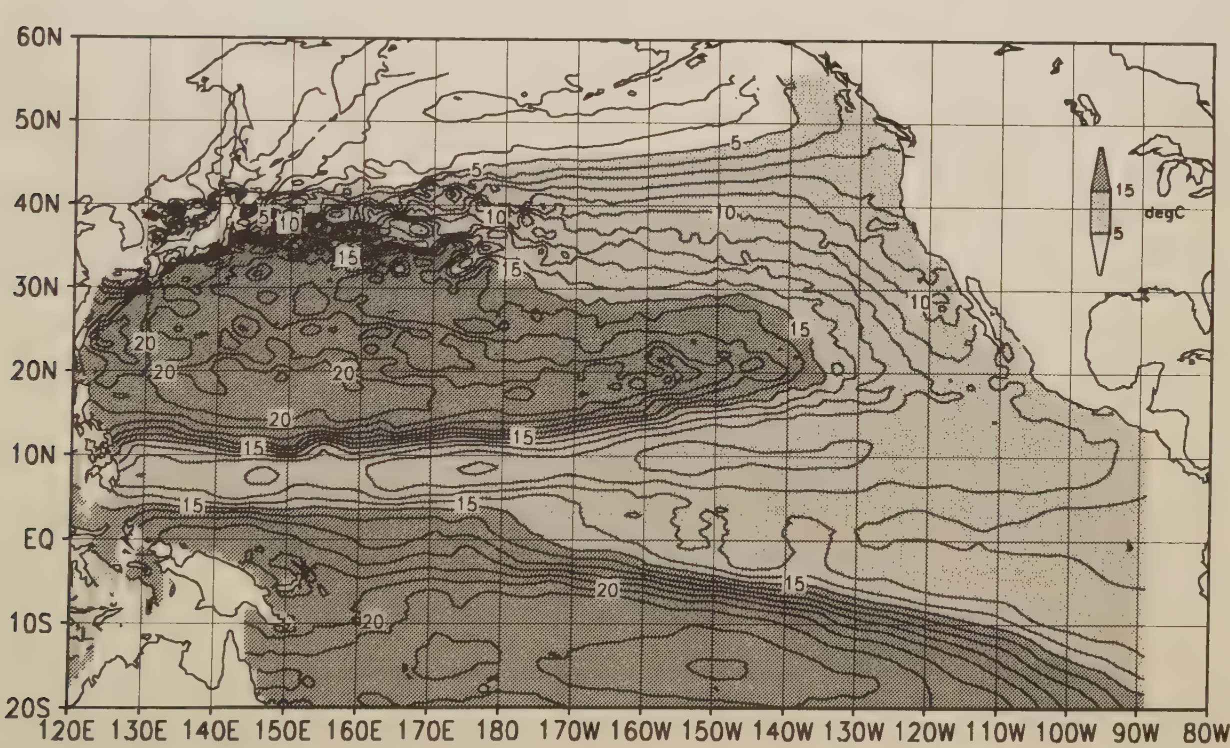
Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for September 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).

100m / 200m Temperature in the Pacific Ocean



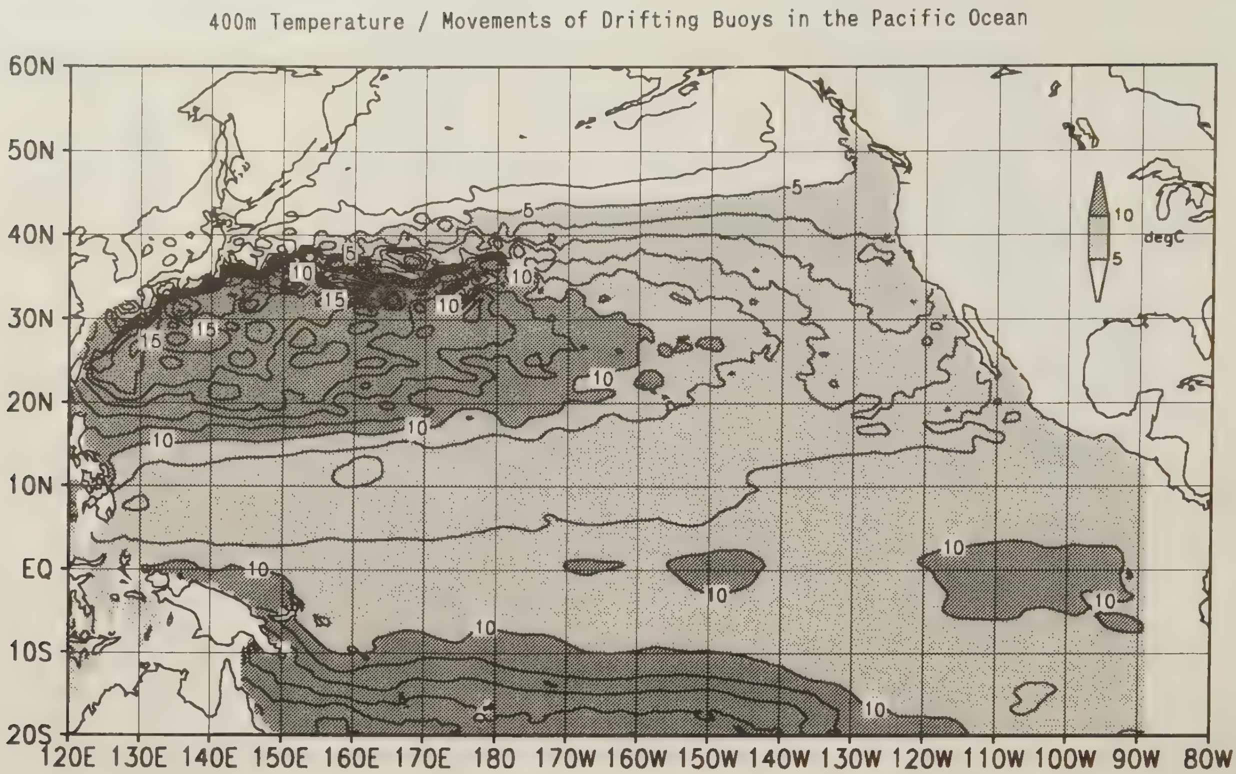
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（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for September 2003. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



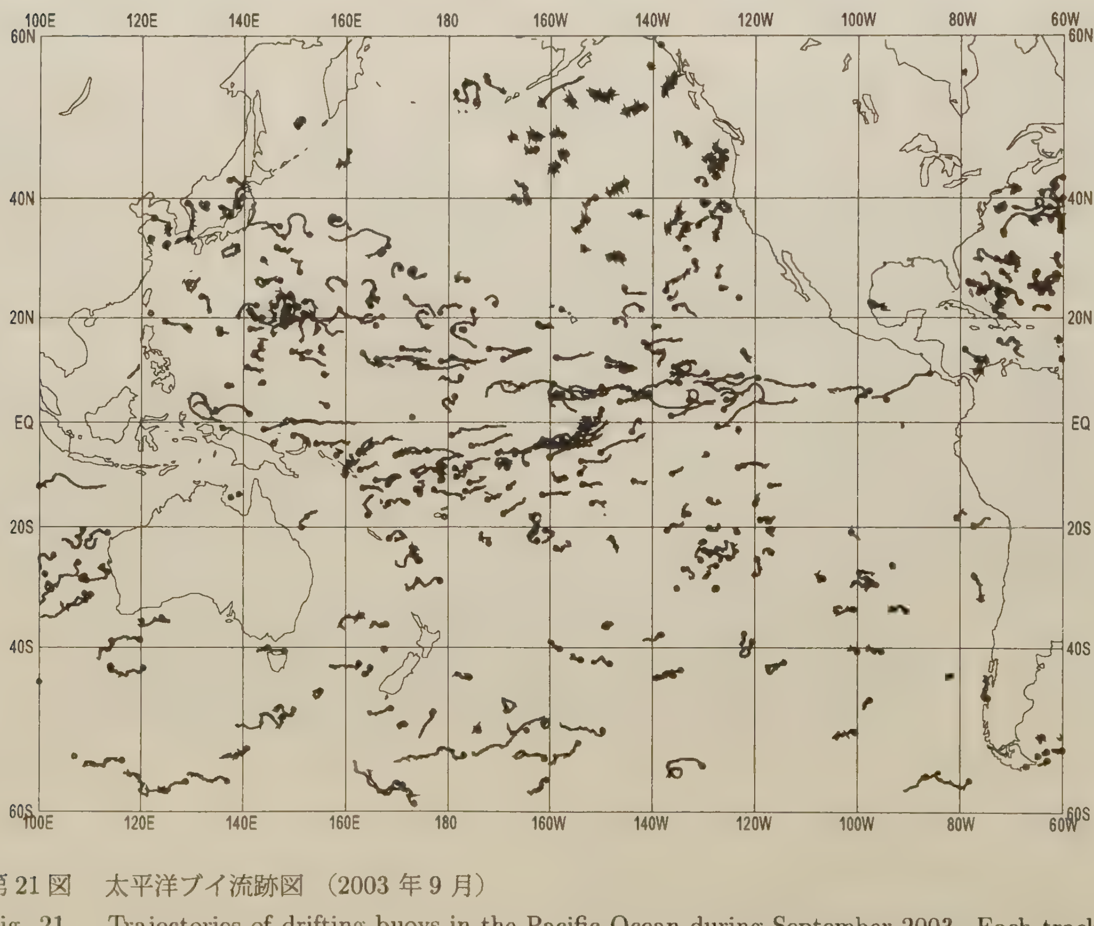
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（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for September 2003. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



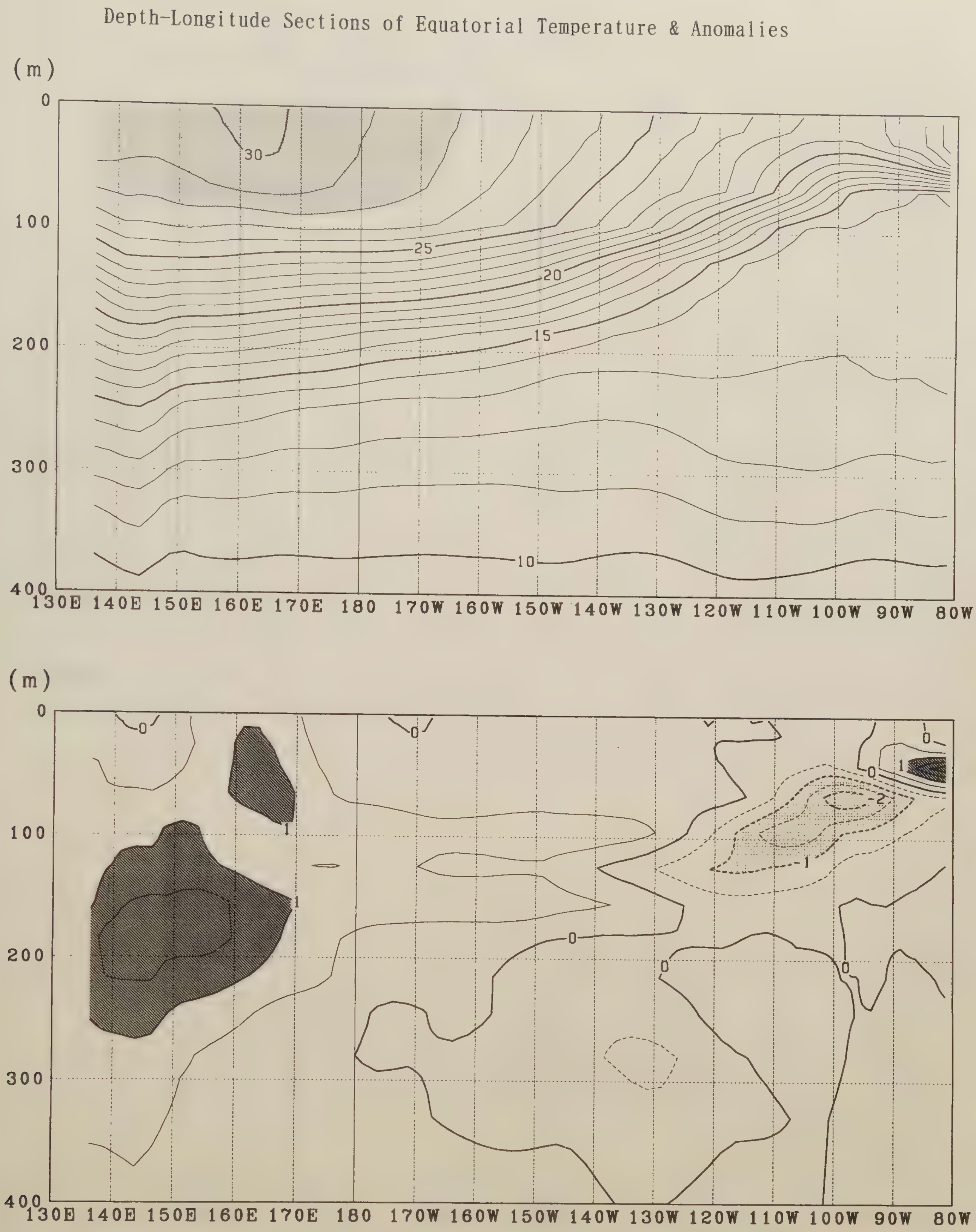
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（海洋総合解析システムによる）

Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for September 2003. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



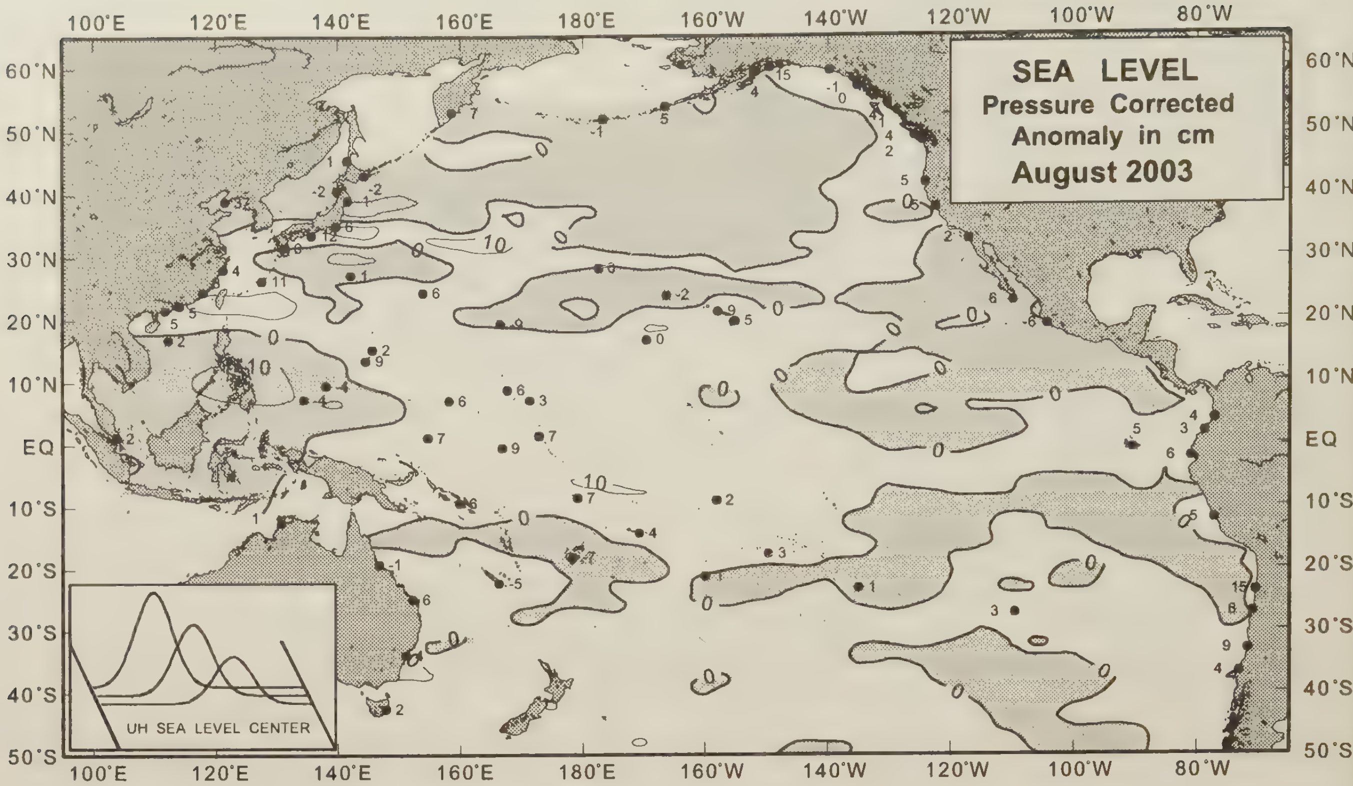
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Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during September 2003. Each track is for one buoy. Small circles represent the last positions for the month.



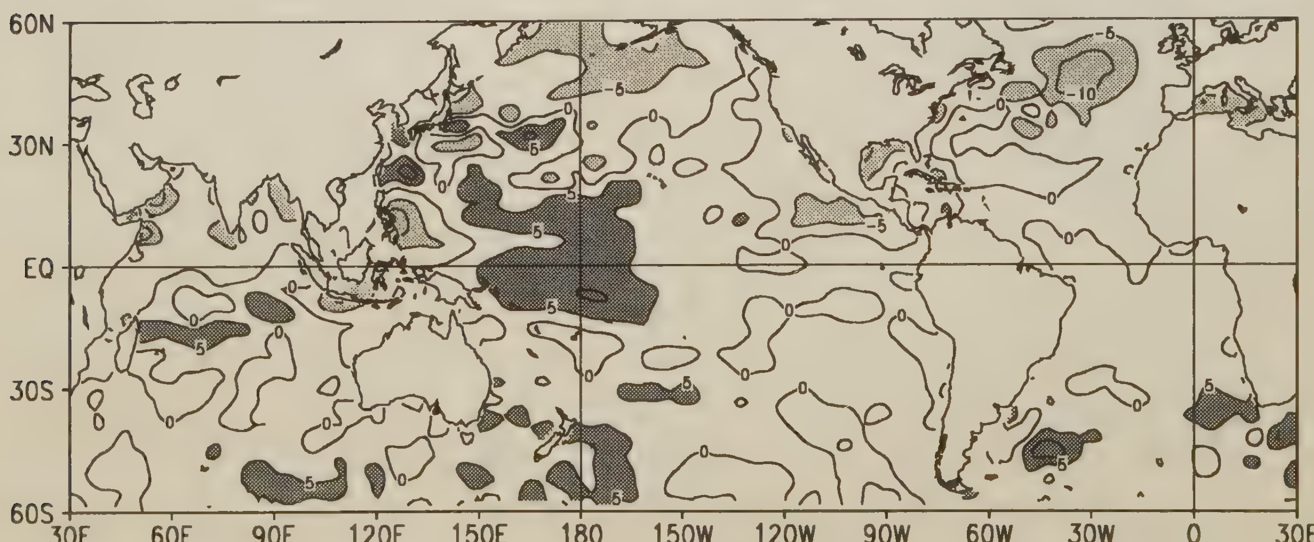
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第 23 図　太平洋月平均海面水位偏差図 （2003 年 8 月）

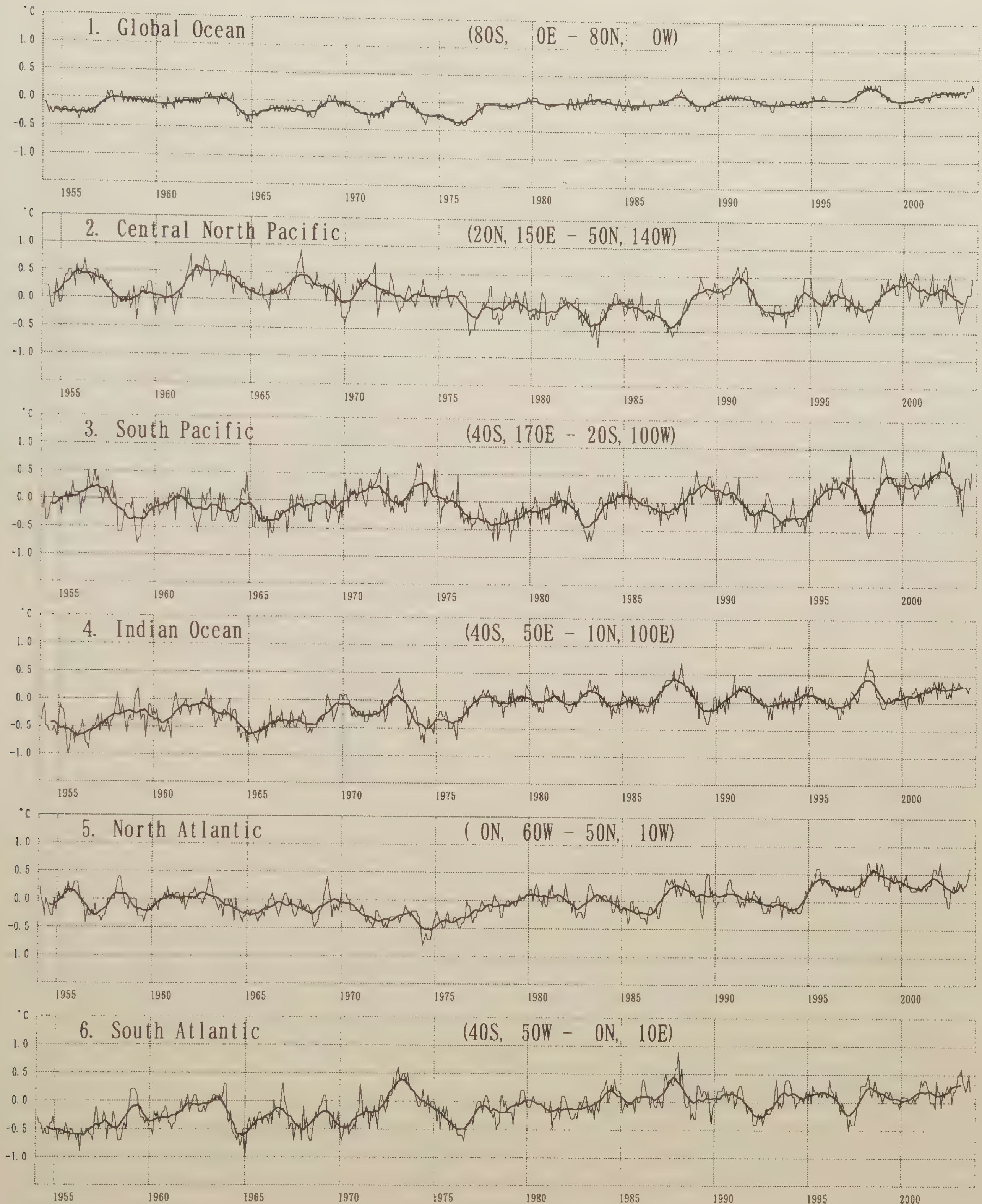
Fig. 23　Monthly sea level anomalies for August 2003 obtained from mean sea level (1993-2001) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



第 24 図　全球月平均海面高度偏差図 （2003 年 8 月）

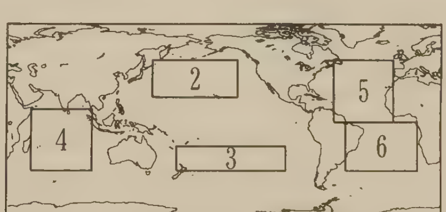
Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of Jason-1 for August 2003. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are shaded and negative anomalies exceeding -5 cm are spotted. Anomalies are computed from 1993-1998 base period means.

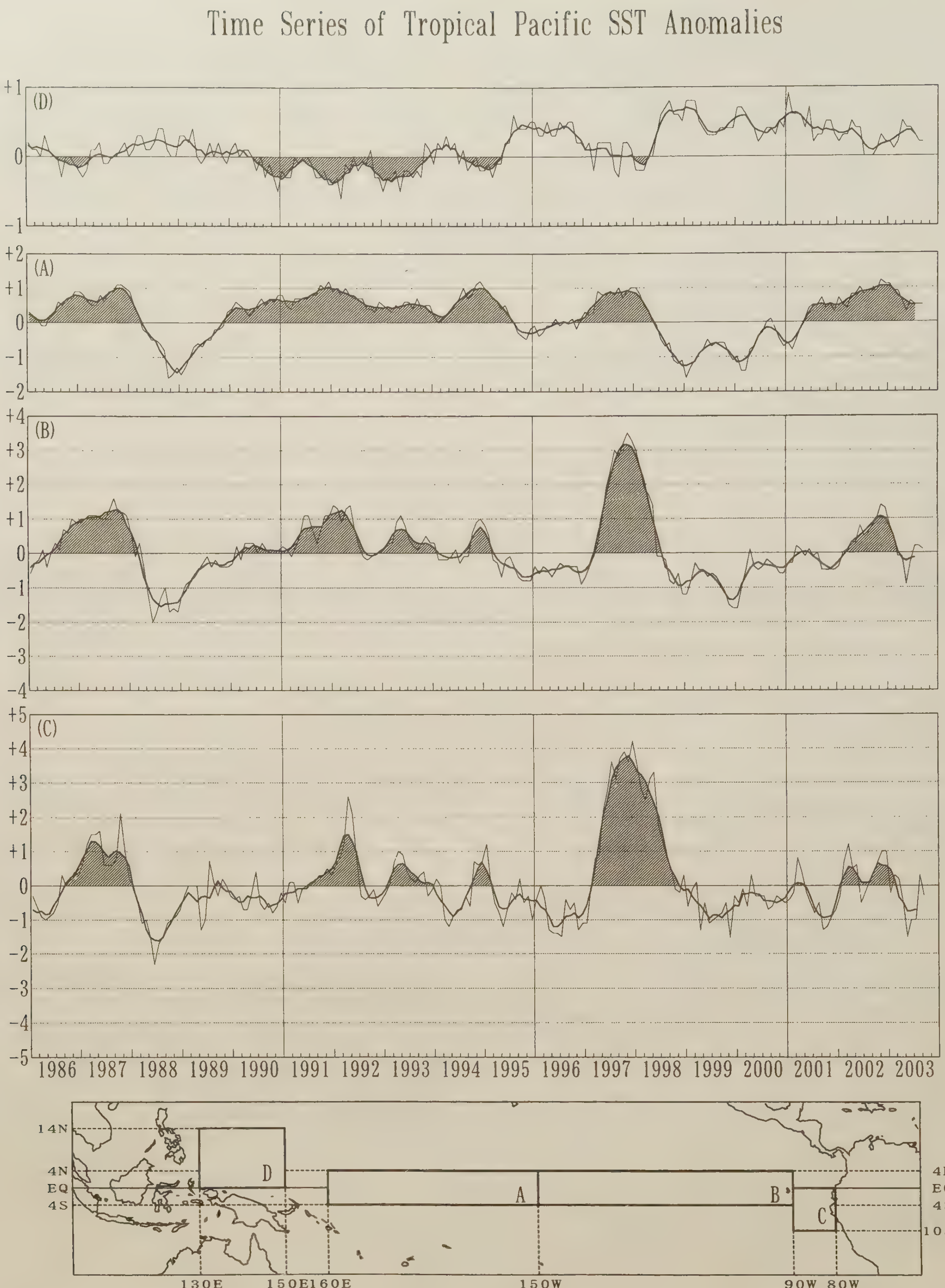
Long-term Variation of Monthly Mean SST Anomalies



第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.





第26図　太平洋熱帯域の海面水温偏差時系列図

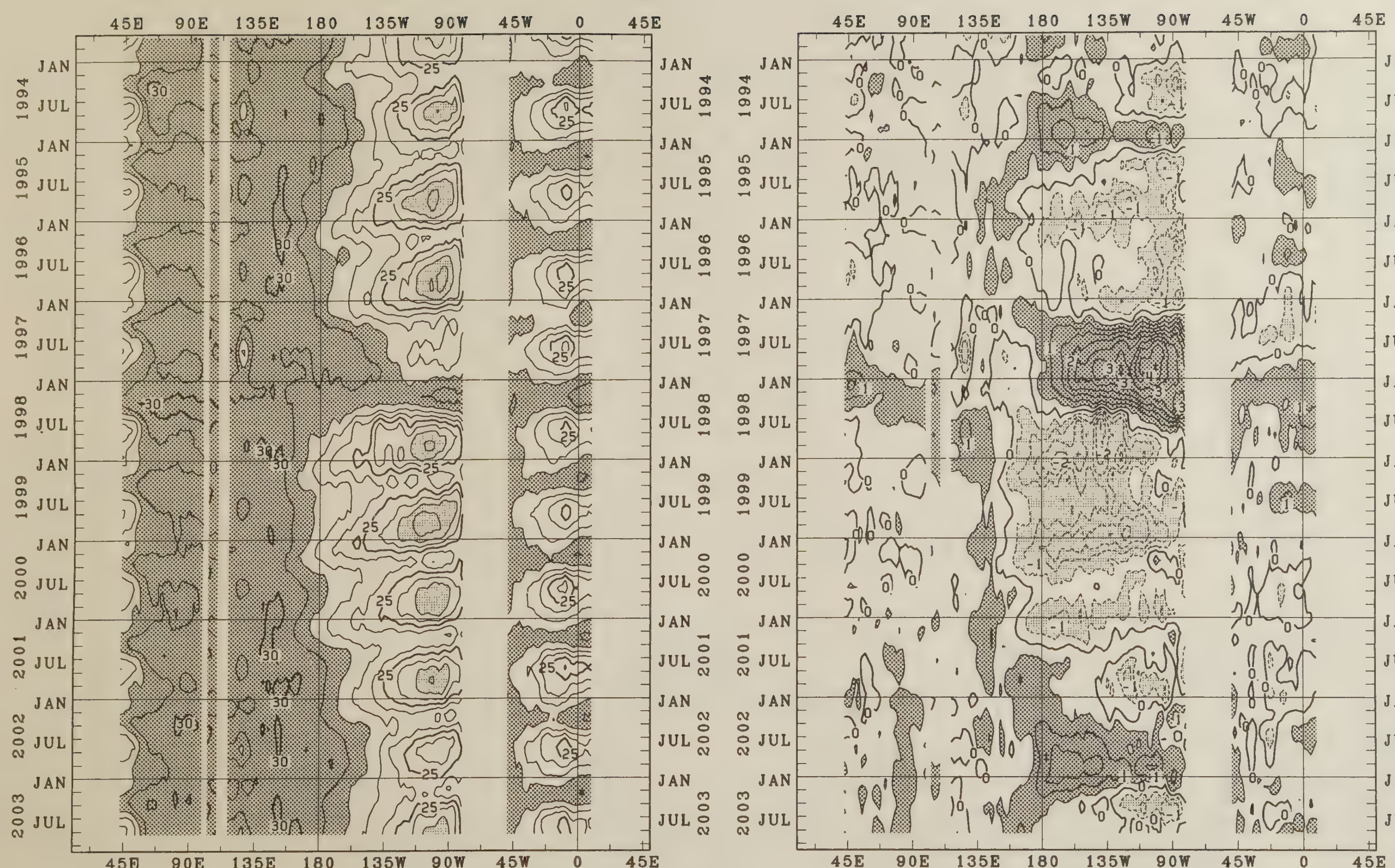
Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel.
Thin lines show the monthly means and thick lines their 5-month running means.　Positive anomalies (A, B, C) and negative anomalies (D) are shaded.　Anomalies are computed from the JMA climatology (1971-2000).

Monitoring Indices in the Tropical Pacific

MONTH YEAR	SEA SURFACE TEMPERATURE AND ANOMALY (°C)								SOI	SEA LEVEL PRESSURE ANOMALY (hPa)	
	REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 01	29.4	0.9	27.4	-0.6	25.1	-0.3	24.1	-0.4	0.8	2.5	0.6
FEB 01	28.9	0.6	27.2	-0.8	26.0	-0.3	25.8	-0.2	1.0	-0.4	-3.2
MAR 01	29.1	0.6	27.6	-0.5	27.3	0.2	27.1	0.8	0.8	1.3	-0.2
APR 01	29.4	0.6	28.0	-0.2	27.3	0.1	25.8	0.4	0.1	-0.1	-0.3
MAY 01	29.7	0.4	28.7	0.1	26.8	-0.1	24.1	-0.2	-0.7	-0.2	0.9
JUN 01	30.1	0.7	28.9	0.4	26.3	0.1	22.4	-0.5	0.2	-0.2	-0.5
JUL 01	29.5	0.2	29.0	0.5	25.3	-0.1	21.1	-0.8	-0.2	-0.1	0.3
AUG 01	29.5	0.3	28.9	0.5	24.7	0.0	20.4	-0.5	-0.7	-0.9	0.1
SEP 01	29.6	0.3	29.1	0.7	24.2	-0.5	19.2	-1.3	0.1	-0.2	-0.4
OCT 01	29.9	0.5	28.8	0.4	24.2	-0.5	19.7	-1.2	-0.1	-0.9	-0.9
NOV 01	29.8	0.5	28.9	0.5	24.2	-0.5	20.9	-0.9	0.6	0.7	-0.4
DEC 01	29.3	0.3	28.5	0.3	24.5	-0.5	22.2	-0.7	-0.8	-1.2	0.3
JAN 02	28.7	0.2	28.7	0.7	25.0	-0.4	24.2	-0.3	0.3	1.3	0.7
FEB 02	28.6	0.3	28.5	0.5	26.3	0.0	26.7	0.7	0.7	1.5	-0.2
MAR 02	28.8	0.3	28.5	0.4	27.2	0.1	27.5	1.2	-0.2	0.4	1.0
APR 02	29.3	0.5	29.0	0.8	27.5	0.3	25.9	0.5	-0.1	0.1	0.3
MAY 02	29.7	0.4	29.4	0.8	27.2	0.3	24.9	0.6	-1.3	-1.1	0.7
JUN 02	29.8	0.4	29.5	1.0	27.0	0.8	22.4	-0.5	-0.4	-0.2	0.4
JUL 02	29.3	0.0	29.3	0.8	25.9	0.5	21.7	-0.2	-0.7	0.5	1.6
AUG 02	29.2	0.0	29.3	0.9	25.3	0.6	21.0	0.1	-1.2	-1.4	0.5
SEP 02	29.3	0.0	29.3	0.9	25.5	0.8	20.9	0.4	-0.5	-0.3	0.8
OCT 02	29.5	0.1	29.3	0.9	25.7	1.0	21.6	0.7	-0.5	-1.0	-0.3
NOV 02	29.6	0.3	29.6	1.2	26.1	1.4	22.8	1.0	-0.4	0.1	1.0
DEC 02	29.2	0.2	29.3	1.1	26.3	1.3	23.9	1.0	-1.0	-0.1	1.7
JAN 03	28.7	0.2	29.1	1.1	26.2	0.8	24.3	-0.2	-0.1	-0.1	0.2
FEB 03	28.4	0.1	28.9	0.9	26.8	0.5	26.3	0.3	-0.5	-1.5	-0.2
MAR 03	28.7	0.2	29.0	0.9	27.0	-0.1	26.5	0.2	-0.3	-0.2	0.5
APR 03	29.3	0.5	28.8	0.6	27.1	-0.1	24.9	-0.5	-0.1	0.5	0.8
MAY 03	29.7	0.4	28.9	0.3	26.0	-0.9	22.8	-1.5	-0.6	-0.7	0.2
JUN 03	29.8	0.4	29.1	0.6	25.9	-0.3	21.9	-1.0	-0.9	-0.9	0.4
JUL 03	29.6	0.3	29.0	0.5	25.6	0.2	20.9	-1.0	0.2	0.7	0.3
AUG 03	29.4	0.2	28.9	0.5	24.9	0.2	21.2	0.3	0.0	-0.2	-0.1
SEP 03	29.5	0.2	28.9	0.5	24.8	0.1	20.2	-0.3	-0.1	-0.3	0.0

第1表　太平洋熱帯域の大気及び海洋の監視指数

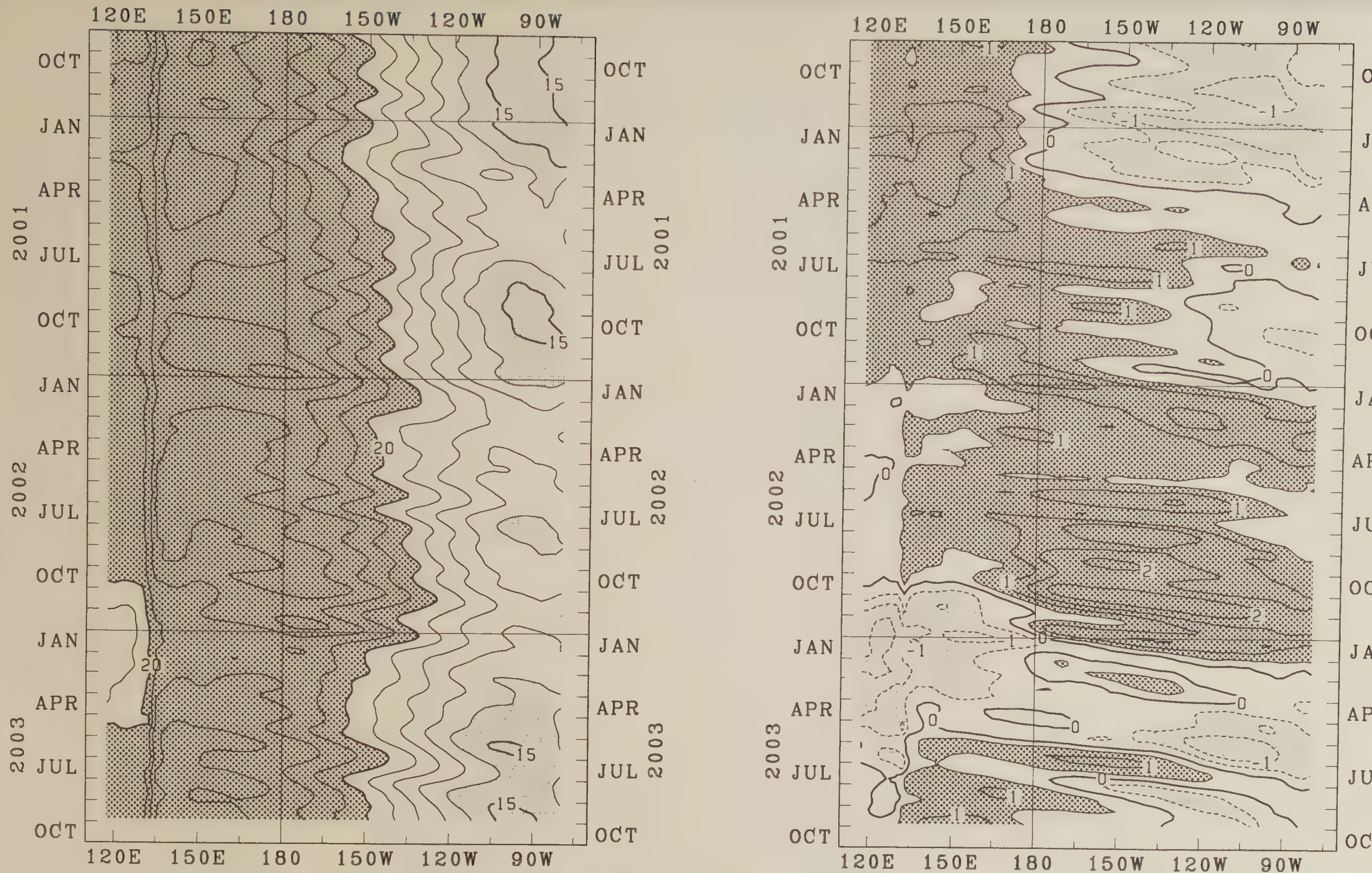
Table 1 Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean



第 27 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2 °N-2 °S) in the global ocean. Contour interval is 1 °C (left) and 0.5 °C (right). Values greater than 28 °C (+0.5 °C) are shaded and values less than 23 °C (-0.5 °C) are spotted in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.

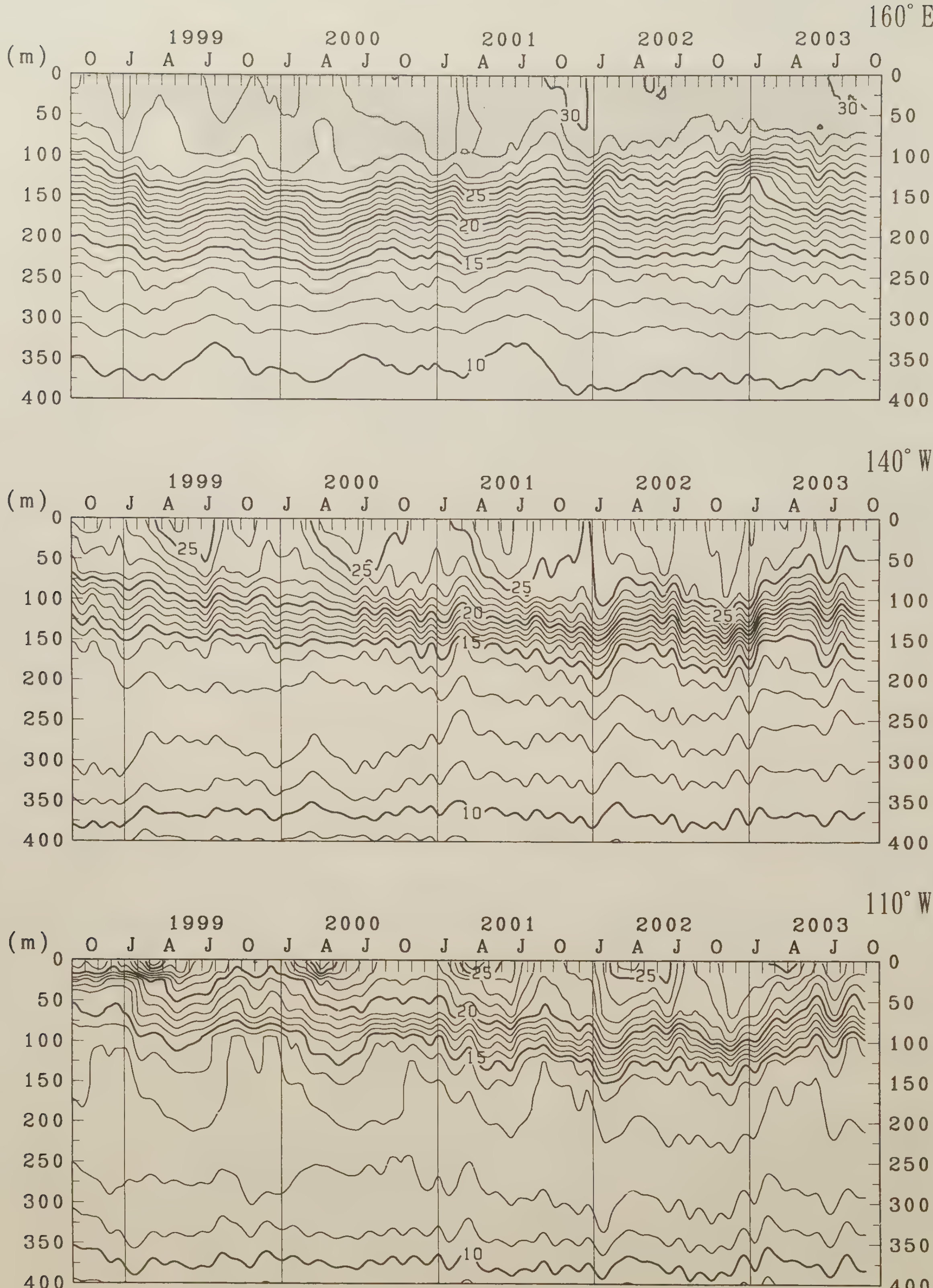
Time-Longitude Sections of Ocean Heat Content & Anomalies (Eq.)



第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig. 28 Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C (+0.5°C) are shaded and values less than 16°C (-0.5°C) are spotted in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-2002 base period means.

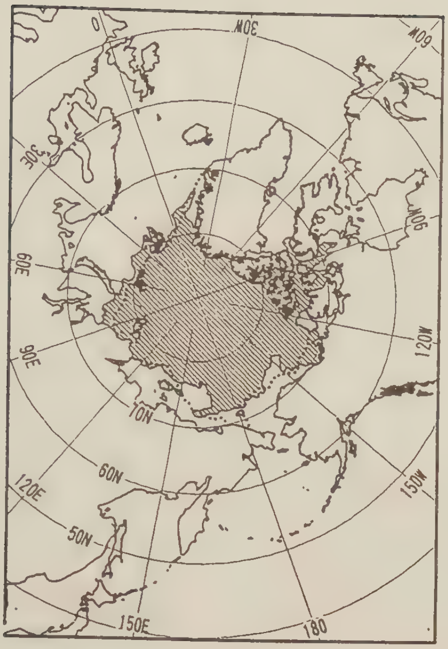
Time-depth Sections of Equatorial Subsurface Temperature



第29図　太平洋赤道域の表層水温の時間－深度断面図

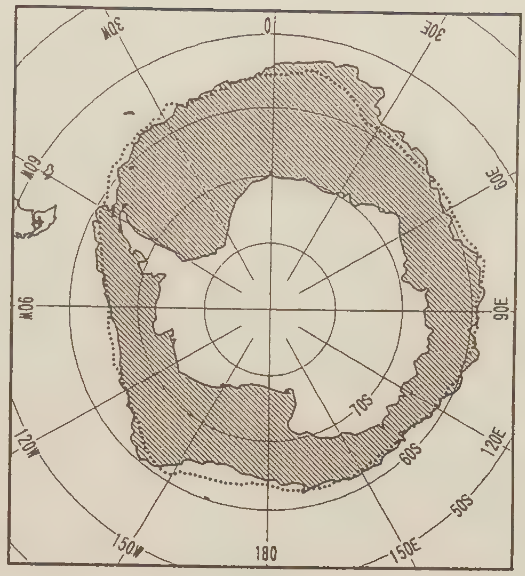
（上：西部、中：中部、下：東部）

Fig. 29 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.



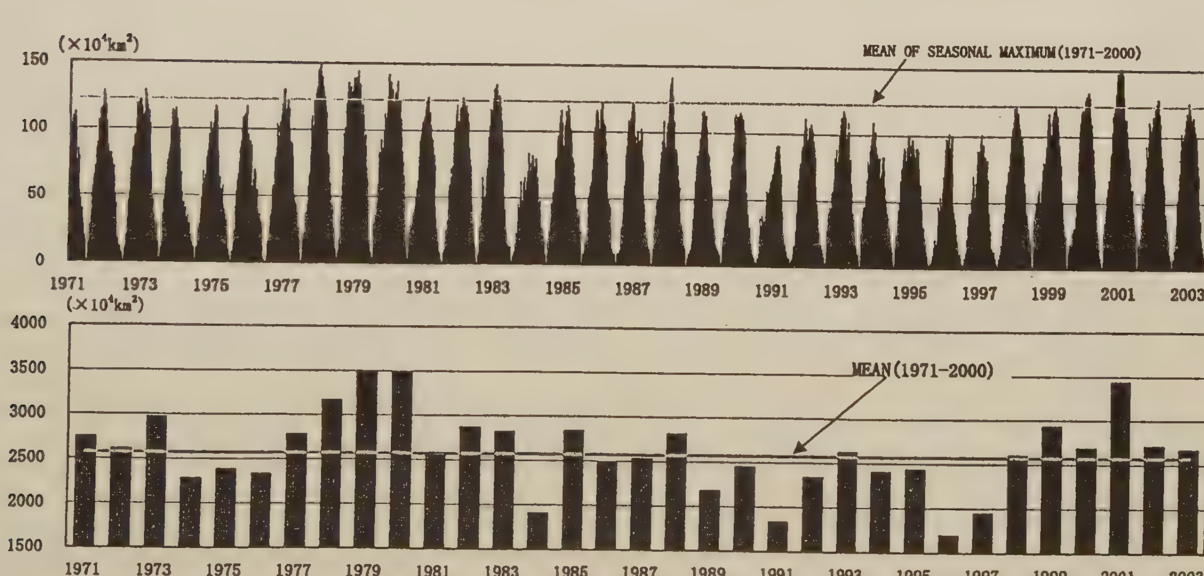
第30-1図　北極域の海氷図（2003年 9月16日）

Fig.30-1 Sea ice chart in the Arctic on 16 Sept. 2003.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.
The data source is the National Ice Center (USA).



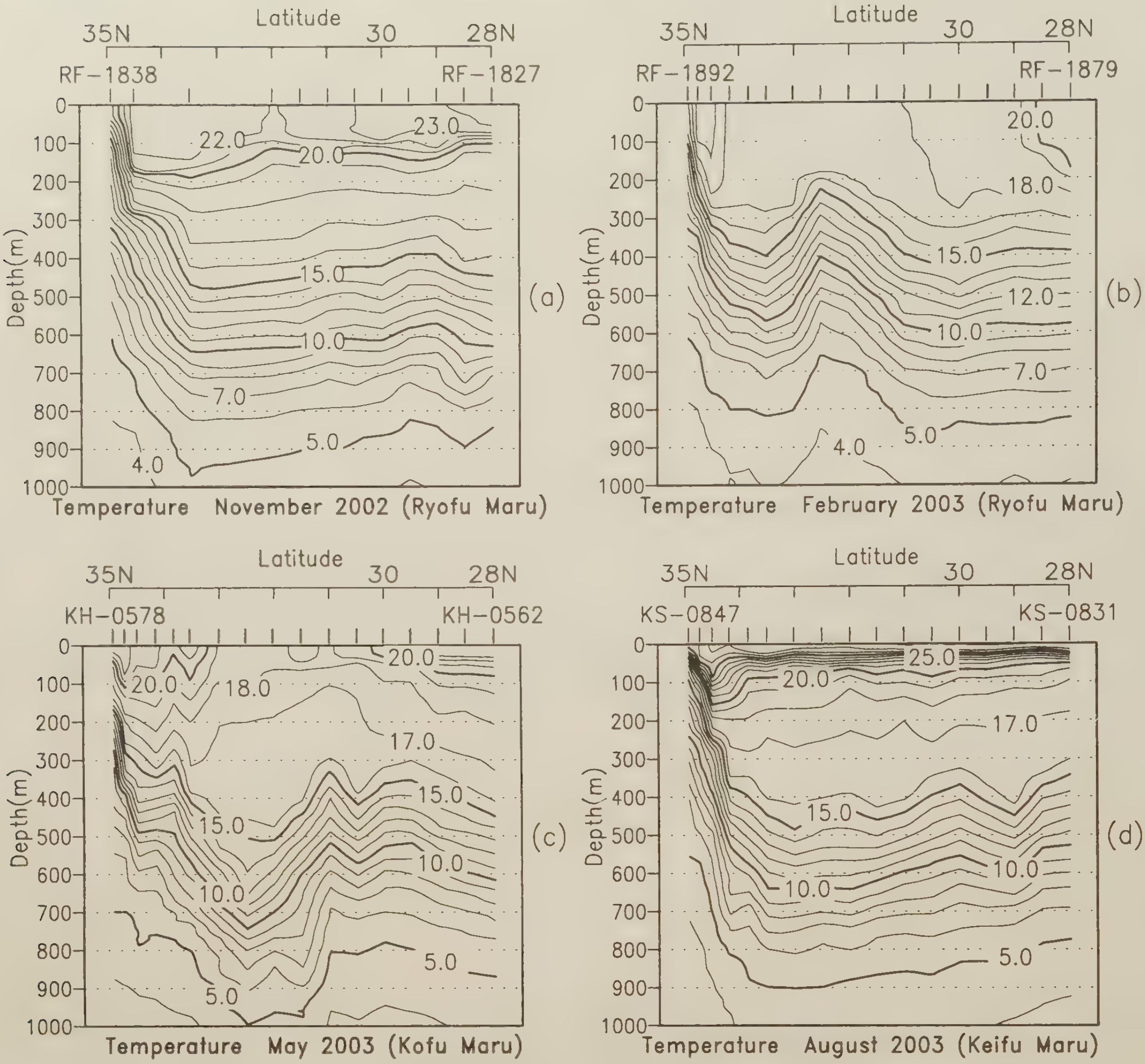
第30-2図　南極域の海氷図（2003年 9月16日）

Fig.30-2 Sea ice chart in the Antarctic on 16 Sept. 2003.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.
The data source is the National Ice Center (USA).



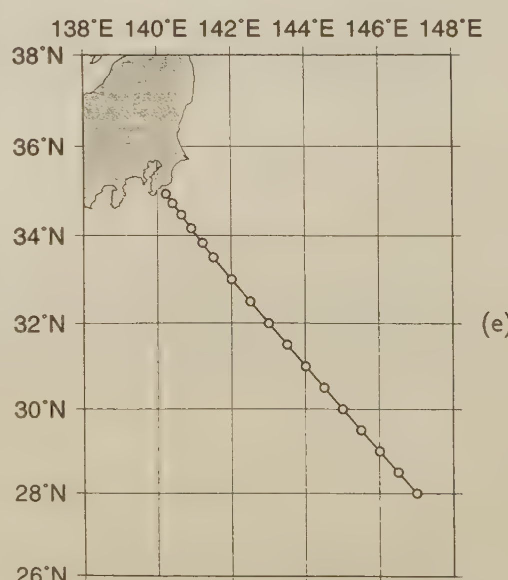
第30-3図 オホーツク海の海氷期の半旬海氷域面積（上段）とその積算（下段）の経年変化

Fig.30-3 Time series of 5-day sea ice extent from December to May (upper) and its accumulation (lower) in the Sea of Okhotsk

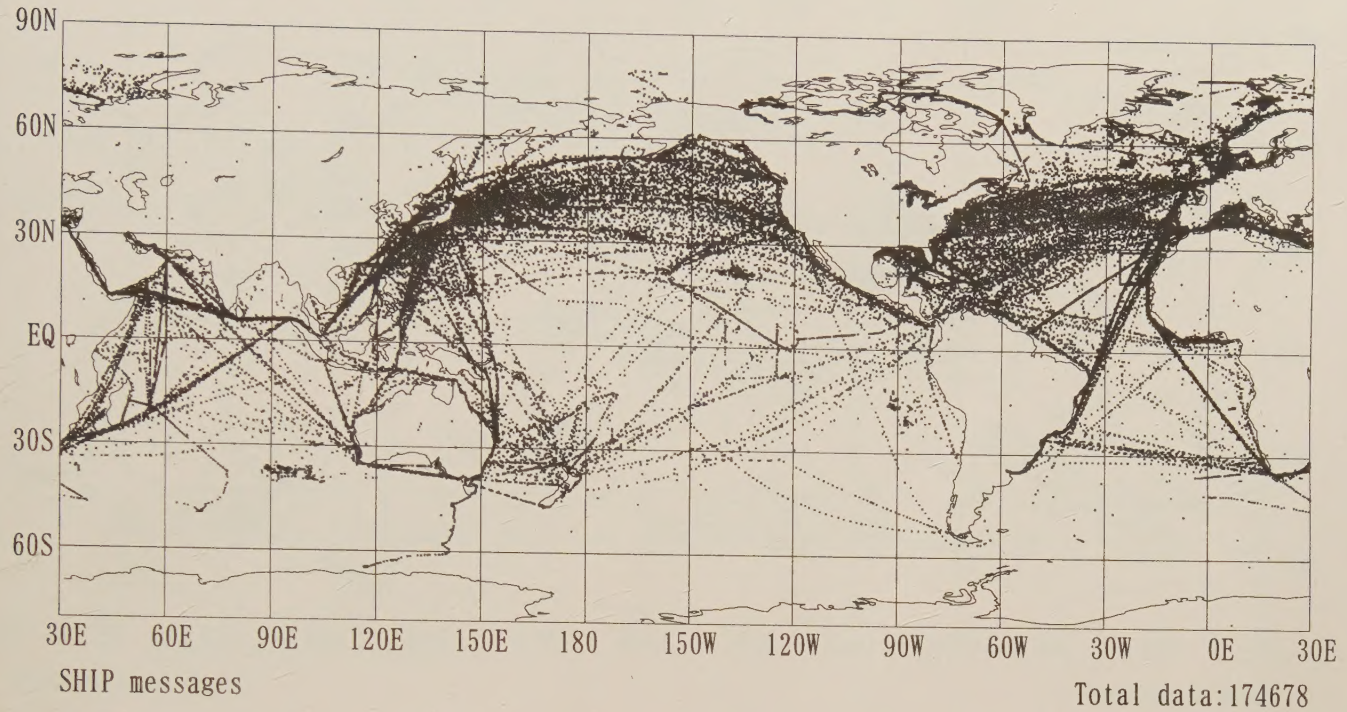


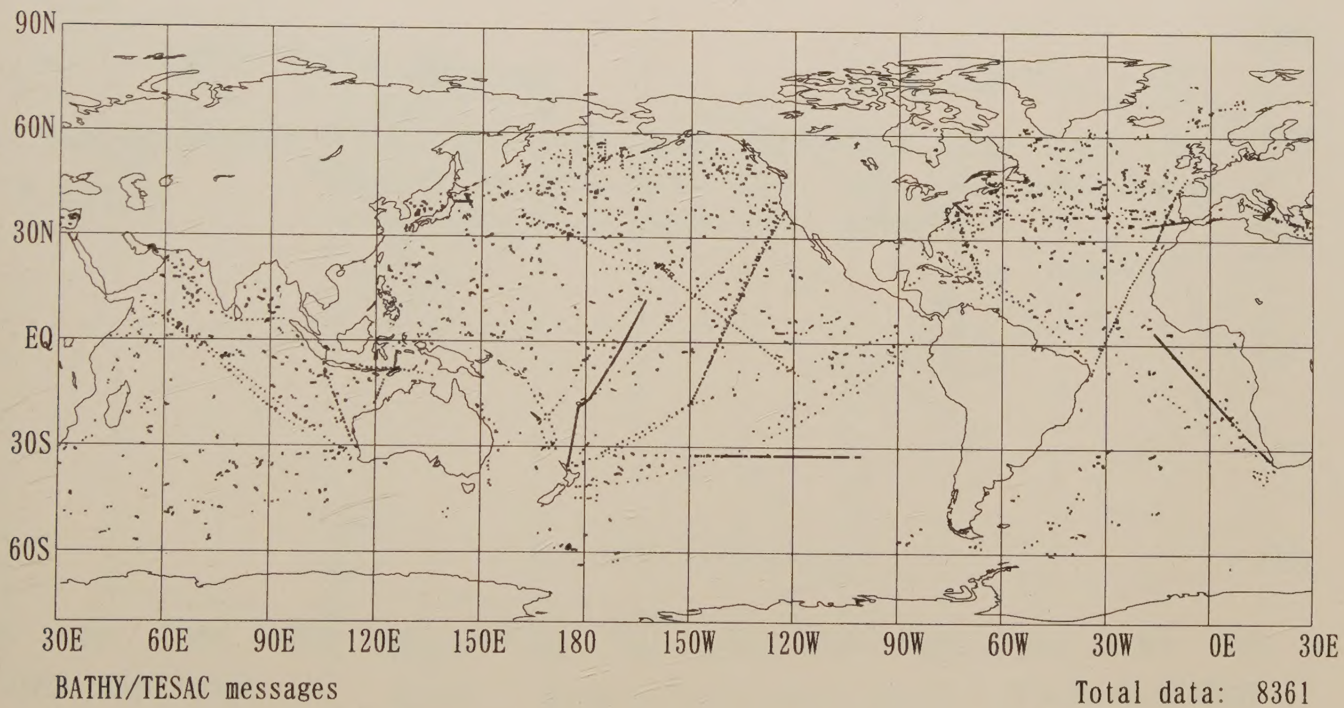
第 31 図 気象庁凌風丸, 函館海洋気象台高風丸及び神戸海洋気象台啓風丸による房総沖線に沿った水温鉛直断面図. (a) 2002 年 11 月 (凌風丸), (b) 2003 年 2 月 (凌風丸), (c) 2003 年 5 月 (高風丸), (d) 2003 年 8 月 (啓風丸), (e) 観測位置図.

Fig. 31 Vertical sections of water temperature (°C) along the off Boso line by R/V Ryofu Maru of JMA, R/V Kofu Maru of Hakodate Marine Observatory and R/V Keifu Maru of Kobe Marine Observatory.
(a) November 2002 (Ryofu Maru), (b) February 2003 (Ryofu Maru), (c) May 2003 (Kofu Maru), (d) August 2003 (Keifu Maru) and (e) Location of observations.



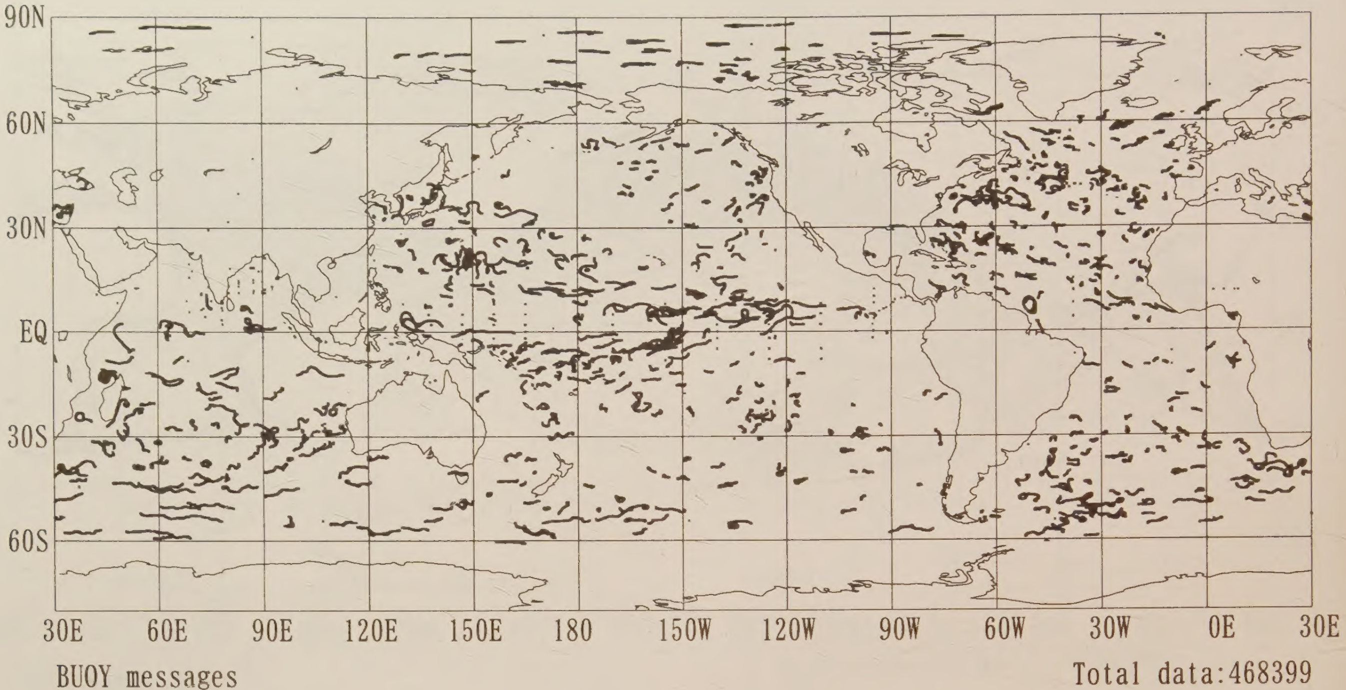
Geographical Distribution of Oceanographic Data

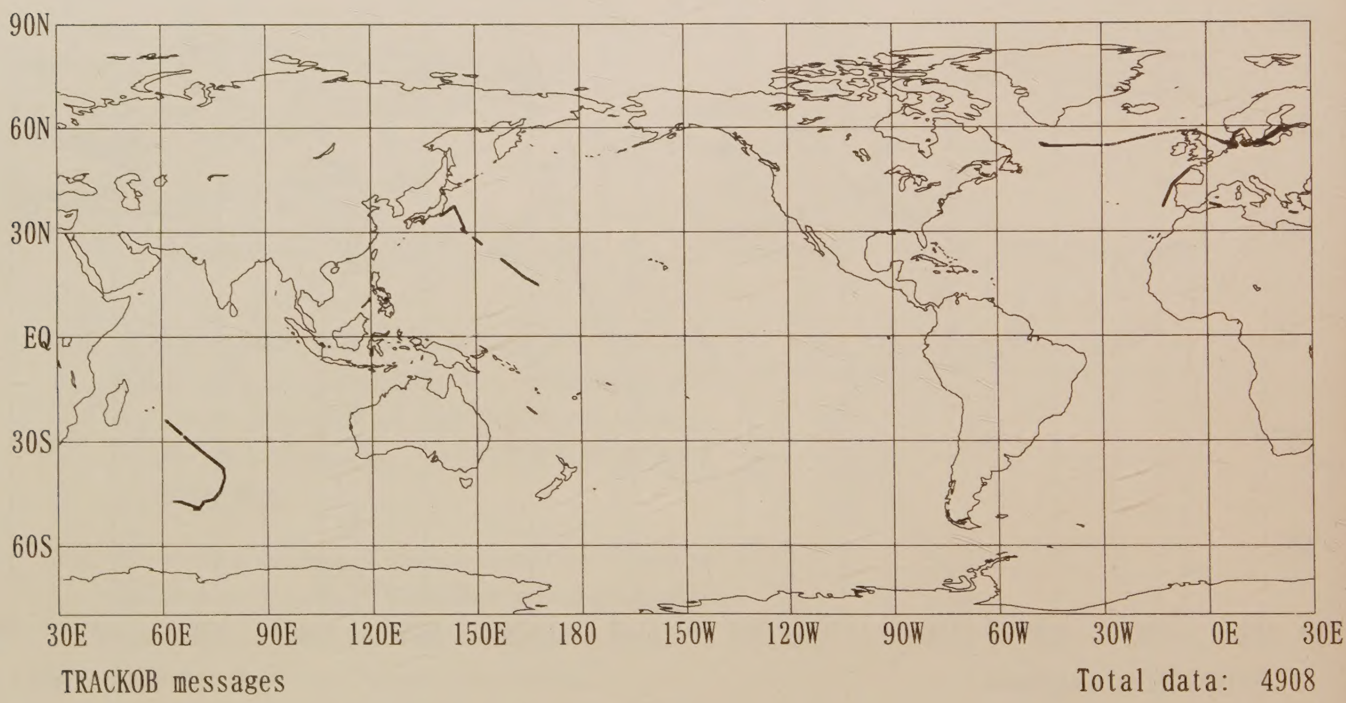




第32-1図　測点分布図(2003年 9月)

Fig. 32-1 Geographical distribution of SHIP messages (top) and BATHY/TESAC messages (bottom) for September 2003.





第32-2図　測点分布図(2003年 9月)

Fig. 32-2 Geographical distribution of BUOY messages (top) and TRACKOB messages (bottom) for September 2003.

気　象　庁　海　洋　月　報

Monthly Ocean Report

September 2003 (No. 129)

本月報掲載の 2003 年 9 月のプロダクトには、気象庁が観測したデータ及び GTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供いただいたデータを使用しています。御礼申し上げます。

防衛庁、水産庁、海上保安庁

水産総合研究センター

海洋科学技術センター、（社）漁業情報サービスセンター

東北大学、東京大学

水産試験場等（北海道、青森県、岩手県、宮城県、秋田県、山形県、福島県、茨城県、千葉県、新潟県、富山県、石川県、静岡県、愛知県、三重県、京都府、兵庫県、和歌山県、鳥取県、島根県、山口県、高知県、佐賀県、宮崎県）

（順不同）

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